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February 14, 2008

Operations and Services

Surface Observation Program (Land), NDPD 10-13

Cooperative Program Management and Operations

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OPR: W/OS7 (J.Newkirk)

Certified by: W/OS7 (K.Schrab)

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SUMMARY OF REVISIONS: This instruction replaces National Weather Service Handbook No. 6 “Cooperative Program Operations,” dated September 1993, it supersedes NWSI 10-1307 “Cooperative Station Management,” dated June 9, 2006, it also rescinds NWSI 10-1309 “Visitation Procedures-Cooperative Observing Stations,” dated February 8, 2005.

Changes are: (1) Deleted RCN and CRN networks from Appendix A. (2) Updated and renamed WS Form B-23 to WS Form 10-13-6 - Appendix B. (3) Added new concept for establishing, changing and closing a cooperative station. (4) Added a Data Continuity Committee to better judge climate differences when moving a station and help the field make better decisions- Appendix C. (5) Added tables C-1 and C-2 in decision making and added web sites for better reference-Appendix C. (6) Updated reimbursable procedures from Handbook 6-Appendix D. (7) Updated data management and quality control to today’s standards- Appendix E. (8) Rewrite of court appearances by coop observers and added web sites for attorney referral -Appendix E. (9) Added official observation site certificate- Appendix F.

Signed

January 31, 2008

James E. Hoke

Date

Director (Acting), Office of Climate,
Water, and Weather Services

Cooperative Program Management and Operations

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1. Introduction. This instruction defines and describes the mission and scope of the National Weather Service (NWS) Cooperative Observer Program (COOP). It provides overall policy and responsibilities for management and operation of the COOP, its networks and observing sites, and the applicable databases. The mission of the COOP is two-fold: (1) to provide observational data (usually consisting of daily maximum and minimum temperatures and 24-hour precipitation totals) necessary to define the climate of the United States and to help measure extreme weather events, climate variability, and long-term climate changes; and (2) to provide observational data in near real time to support forecast, warning, and other public service programs of the NWS.

2. Purpose. This instruction provides basic instructions for COOP station operations and management. It is intended for the use of the NWS Representative (NWSREP) - the person who establishes, maintains, visits, and closes COOP stations. The NWSREP is usually a Hydrometeorological Technician (HMT), Data Acquisition Program Manager (DAPM), or Observing Program Leader (OPL). However, a NWSREP may be any NWS employee who conducts official visits to cooperative stations.

3. Definition of Cooperative Observing Program. The COOP is a means by which the NWS obtains observational data to support the climate mission and field operations. The program includes the selection of data sites; recruiting, appointing, lease agreements, coop agreements and training of observers; installation and maintenance of equipment; station documentation (metadata); observer payroll as appropriate; data collection and its delivery to users; data quality control functions; and the management of fiscal and human resources required to accomplish mission objectives.

COOP observers may serve on either a paid or unpaid basis, depending on the types of services rendered. These services frequently consist of observing and recording temperature and precipitation daily and reporting those observations to the National Climatic Data Center (NCDC) or an NWS office daily if possible and at the end of each month. Many COOP observers provide additional hydro-meteorological data, such as evaporation. Data are sent via telephone, computer, mail or electronic transfer medium. NWS COOP station equipment can be the property of the NWS, the observer, a company or other government agency. All equipment must meet the NWS COOP equipment performance and siting requirements as defined in NWSI 10-1302 and NWSM 10-1315.

4. Official COOP Station. An official COOP station will be included in a cooperative network when it has been duly approved under the supervision of the local WFO and meets the following criteria (publication of data is not a criterion):

- a. Equipment for observations meets NWS cooperative equipment performance and siting requirements.
- b. Station metadata is documented in the Cooperative Station Service Accountability (CSSA) database.

- c. The station is assigned:
 - (1) A station index number by NCDC requested by the NWSREP through the Regional Cooperative Program Manager (RCPM)
 - (2) A Station Identifier by the NWS Office of Operational Systems (OPS), Configuration Management Branch requested through the NWS Location Identifier (NWSLI) system database.

These criteria are necessary to ensure satisfactory instrumentation, sensor exposure, documentation, and approval, to ensure the availability of supporting funds will be available. Automated observing stations become COOP stations if, any data element could otherwise be provided by a cooperative observer. A cooperative station may be co-located with other types of observing stations. In these cases, the portion of the observing program which supports the cooperative program's mission is treated and documented independently of the other observational and service programs.

5. Cooperative Observing Program Responsibilities. Management responsibilities for the COOP are shared by Weather Service Headquarters (WSH), each of the six Regional Headquarters (RH), and Weather Forecast Offices (WFO's). Weather Service Offices (WSO) and Data Collection Offices (DCO) may be involved in the cooperative program when appropriate.

5.1 Weather Service Headquarters. WSH establishes national policy and provides guidelines for program management. WSH also provides national leadership for program goals and seeks resources needed to operate the program. To affect an orderly management program, there are certain areas in which procedures remain uniform for all regions.

5.2 Office of Climate, Water, and Weather Services (OCWWS). OCWWS in coordination with other Offices, is responsible for determining overall requirements for the accuracy and resolution of measurements, the frequency with which observations should be reported, and the density/spacing of observing sites in the Climatological (temperature and precipitation) network, within budgetary constraints. OCWWS determines the requirements to establish, change, or close observing sites. OCWWS also has nationwide responsibility to:

- a. Coordinate program activity and establish procedures to maintain the integrity of COOP networks and to ensure the networks continue to meet the data requirements for which they were established.
- b. Establish policy and procedures for inspecting and maintaining stations.
- c. Establish procedures which ensure uniform implementation and application of policy changes relating to the cooperative program.

- d. Conduct liaison with other government agencies and WSH divisions in the management of cooperative station tasks financially supported by these other agencies through reimbursable funding.
- e. Develop program instruction manuals documenting observing procedures, policies, and other management procedures.
- f. Monitor expenditures and accomplishments.
- g. Oversee databases which contain descriptions, histories, and other information relating to the physical aspects of cooperative stations.
- h. Establish procedures for receipt and review of software and data-base change requests that are controlled nationally by WSH and obtain a consensus agreement from all regions before implementation.
- i. Receive requests for access to nationally maintained databases of the CSSA system, evaluate and approve access, and notify the Office of Operational Systems, Configuration Management, in writing to issue a password to the approved user.
- j. Participate in the review, coordination, and approval process on changes to the CSSA system.
- k. Design forms which compliment the CSSA database such as WS Form B-30; Cooperative Agreement with Observer, WS Form 10-13-3; Award Nominations, WS Form B-43; Request for Establishment or Change in Status of Cooperative Station, and provide guidelines for the preparation and maintenance of these and related forms. These forms are available at the following web site:

<http://www.nws.noaa.gov/om/coop/forms.htm>

5.3 Office of Operational Systems (OPS), Configuration Branch. The OPS has responsibility to:

- a. Maintain existing CSSA software and databases to meet computer security requirements.
- b. Maintain CSSA software and databases to ensure consistent CSSA operations, and make hardware and software corrections as necessary.
- c. Establish procedures to support CSSA software and database changes, conduct testing, provide for Regional approval and implement approved changes.

- d. Provide on-call support during normal working hours to Regions with CSSA software and database problems.
- e. Develop new software and database modules for the CSSA system based on OCWWS provided resources.

5.4 Regional Headquarters. RH implements and ensures compliance with national policy. Regions can supplement national policies and procedures with additional detail, providing they comply with the national directives. In addition to establishing regional policy for the COOP, RH is responsible for:

- a. Establishing regional policy and guidelines for the installation, operation, maintenance, inspection, and management of authorized climatological, meteorological and hydrological cooperative stations.
- b. Coordinate related hydro-meteorological matters with NWS regional and field officials; other government officials from Federal, state, and local agencies; and local citizenry.
- c. Randomly exercise quality control of observed data.
- d. Utilize reimbursable funds from other government agencies and ensure that these funds are spent in accordance with the agreed-upon activities.
- e. Prepare and distribute statistical information and other tabulations which identify accomplishments and achievements related to the regional COOP.
- f. Manage the paid cooperative observer contract program within the region and ensure compliance with established laws and regulations regarding issuance of government contracts to private citizens and businesses.
- g. Coordinate the awards program with the field offices and OCWWS.
- h. Perform routine inspections of the WFO COOP to ensure station records are correctly documented, equipment is correctly maintained and equipment siting is within standards (NWSM 10-1315), when possible.

5.5 Weather Forecast Office, Weather Service Office, and Data Collection Office. The NWSREP usually works out of a WFO and is responsible for the installation and maintenance of cooperative station equipment and, the initial quality control of observations. Generally, their geographical area of responsibility coincides with that of the Meteorologist-in-Charge (MIC) at the associated WFO or for the Pacific and Alaska Regions, the Official-in-Charge (OIC) at the associated WSO or DCO. However, the density of stations and other factors may require that

assigned areas of responsibility vary from the ideal. NWSREPs are responsible for cooperative stations and program activities within their assigned geographical area. At times, NWS officials such as service hydrologists, interns, electronics technicians, facilities technicians, regional headquarters personnel and others may either perform functions or be assigned responsibilities within the scope of the cooperative program and are considered an NWSREP.

One of the more important aspects of the NWSREP's work is the regular contact with the COOP observers. Routine visits to COOP stations are made for the purpose of observer training, maintaining a positive relationship with the observer, equipment maintenance and verification of station metadata. Temperature and non-recording precipitation stations are visited on an annual basis. Stations that measure evaporation and those with recording rain gauges are visited twice a year. The responsibility for maintenance of COOP stations which are telemetered is usually assigned to NWS electronics technicians. Stations with new observers may require additional visits until the observers are fully trained.

Equipment failures may require additional visits at any time. When possible, these visits should be combined with visits to other en route stations. Observers quitting or relocations are not considered emergency visits.

NWSREP's installing, relocating, changing, or inspecting a station should prepare all necessary documentation or furnish adequate notes, sketches, digital photographs, and diagrams to those updating the information in the CSSA within five work days of any change.

6. Cooperative Station Service Accountability. The CSSA is a computerized national database containing descriptions of the cooperative stations maintained by NWSREP's, including the location, observer's name, equipment in use, where and how data are sent, sponsors, etc. The CSSA database is intended to provide cooperative station information. The CSSA instructions are in NWSM 10-1313.

7. Maintaining Good Observer Performance. Positive feedback strengthens the relationship between the observer and the agency and is ultimately reflected in data quality. The NWSREP's visits, phone calls to observers, and recommended awards are appropriate forms of feedback. The NWSREP may invite the observer for an office visit; write local newsletters, and coordinate newspaper articles or any form of feedback approved by the MIC or OIC that highlights the observer.

8. Awards. Awards are a tangible method of showing appreciation for many years of dedication. The awards may be given to individual observers, families and institutions for length of service or in recognition of one or several significant achievements. Recognition for many years of service and for special or sustained achievements is usually secondary in importance only to the encouragement given to observers through positive feedback. Instructions for the awards program are listed in NWSI 10-1314.

9. Environment and Safety. Safety is the duty of every employee and can only be accomplished through the commitment and diligence of everyone. The NWSREP will ensure compliance with NWSM 50-1115 Occupational Safety and Health, and NWSM 50-5116, Environmental Management.

APPENDIX A - Cooperative Station Networks

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1. Introduction. This appendix describes the observing networks comprising the cooperative program. Stations are included in one or more of these networks depending upon the NWS programs (climatology, meteorology, and/or hydrology) supported by their observed data.

2. Cooperative Networks:

2.1 "a" Network. This is the basic climatic network of the NWS. Data from this network are used to describe the climate of the United States. At a minimum, they must observe and report daily 24-hour precipitation totals. Most stations in the network observe 24-hour maximum and minimum temperatures and 24-hour precipitation totals. Some also observe maximum and minimum soil temperatures and evaporation.

Ideally, “a” network stations should be spaced approximately 25 miles apart. A greater spacing (60 miles or more) may suffice in areas with relatively homogeneous climates; a closer spacing may be needed in coastal and mountainous sections where climate differences are more pronounced.

2.2 "b" Network. Cooperative stations are in the "b" network when observed data are used to support NWS hydrologic programs, such as the forecast and warning program and the water resource forecast service program. Stations are established, changed, or closed to meet changing hydrologic requirements that have been defined by field offices and verified by regional hydrologists.

Observing programs at "b" network stations include 24-hour precipitation (some with recording gauges), and often one or more of the following elements: river stage or lake level, maximum and minimum temperatures, evaporation, and soil temperature.

2.3 "c" Network. Cooperative stations are in the "c" network when observed data are used to support the meteorological forecast and warning and public service programs of the WFO. Stations are added, deleted, and changed to reflect changing requirements. The "c" network includes the following general classes of stations:

- a. Local Service. These are temperature and/or precipitation stations used primarily for local public service purposes (metropolitan networks, media releases, etc.).
- b. Long Record. These are temperature and/or precipitation stations with long records but, are not included in the "a" or "b" network.
- c. Research, Experimental, and Special Purpose. These are temperature, precipitation, and/or special purpose stations not included in the "a" or "b" network. Their observations generally include, but are not limited to, maximum and minimum temperatures and 24-hour precipitation. Those stations supporting local service are asked to telephone their observations to a NWS office.

* Several combinations are possible depending on what network is represented at the COOP site. i.e, ab, ac, bc, abc, etc.

2.4 Historical Climatology Network (HCN). This network is a subset of COOP and was identified in 1984 by NCDC to provide a data set suitable for detecting and monitoring secular changes of regional rather than local climate. To minimize artificial changes of local environments, the selected sites should contain few discontinuities, e.g., (station moves, instrument changes, and relocations). At least 80 years of temperature and precipitation records are required, with no more than 5 percent of the observations missing.

3. Reimbursable Stations. For more information on reimbursable stations see Appendix D.

4. Establishing, Changing or Closing Cooperative Stations. The authority to add, change, or close stations is assigned to the Chief of the Systems Operations Division (SOD), Systems and Facilities Division (SFD) or the Regional Hydrologist (or equivalent for Pacific) at the RH. This authority may be delegated to the Regional Cooperative Program Manager. Regardless of the

COOP network (i.e., a, b, or c), all COOP stations must be established or changed in adherence to NWS standards for establishing a COOP station (See Appendix C for more information).

4.1 "a" Network. Stations in the "a" network should comply as closely as possible with the 25 mile spacing principle, allowing for a closer spacing in heavily populated, mountainous, and coastal areas and a wider spacing in homogenous areas. Grid maps indicating the 25 mile spacing are available at RH.

4.2 "b" Network. Changes to the "b" network must be coordinated with the applicable river forecast center and approved by the office of the Regional Hydrologist (or equivalents for Pacific and Alaska Regions).

4.3 "c" Network. Changes to the "c" network should be coordinated and approved by the applicable forecast office and ratified by the regional NWS representative.

4.4 Flood Control Networks (FC). The FC-1 network consists of cooperative stations with recording precipitation gauges for which the NWS has taken over funding and maintenance from the Corps of Engineers (COE). Many of these stations report additional parameters. Observations are needed by both NWS and COE. The COE uses these data to support their water resource management activities, such as reservoir release forecasts or to mitigate damage associated with mainstream flooding. See Appendix D for more information on the FC Network.

4.5 Part-Time Stations. Cooperative stations operating through the year on an interrupted basis (such as 5-day-a-week stations, which fit work tours of personnel) are classified as non-published stations. Some of these stations may have equipment that functions seven days a week without the aid of an observer such as F&P. In this case, that part of the station may be published.

Part-time stations established for short periods or on a part-of-the-year basis to fill the needs of special programs are not considered part of the "a" network. If such stations are required in the hydrologic or other programs and evidence suggests the stations will continue over a period of years, they may be included in the "b" or "c" network.

5. Status of Stations. Information on the status of stations and networks are obtained at any time from the computerized database. Timely and accurate updates to the Station Information Report (SIR) are important to maintain the integrity of the metadata.

* (SIR) is used interchangeably with WS Form B-44 and means the same.

APPENDIX B – Visitation Procedures-Cooperative Observing Stations

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1. Introduction. This appendix defines guidelines and responsibilities for the National Weather Service (NWS) COOP station inspection program. This instruction provides a common general guide for the inspection of COOP stations and establishes uniform standards for the national program. The procedures described are considered a guide, and not in lieu of good judgment and initiative on the part of the NWSREP.

The individuals serving as cooperative observers (paid or unpaid) do the major part of the “cooperating.” Therefore, NWS personnel should be diligent and do everything possible to maintain their good will. The inspection of each COOP station should be unbiased, positive, polite, and thorough. COOP stations must strive to meet observational standards of accuracy and completeness. A simple common sense technique, applied with patience and a genuinely friendly and helpful spirit, will go far toward ensuring success.

2. Specific Responsibilities of National Weather Service Representative (NWSREP). The NWSREP is usually assigned duties by the MIC of the WFO and in the Pacific Region by the OIC of the WSO and the DCO. At times, NWS officials such as service hydrologists, interns, electronic technicians, facilities technicians, regional headquarters personnel, and others may perform functions or be assigned responsibilities within the scope of the COOP and are

considered an NWSREP. The NWSREP is responsible for the efficient operation of the COOP within their assigned areas. Their duties are highlighted in Section 3.

3.0 COOP Sites.

3.1 Selection of Sites. The NWSREP and the RCPM may coordinate with the Regional and local Hydrologist to determine the best sites for COOP stations with respect to location, exposure, and availability of COOP observers. They make the necessary arrangements with owners for the use of sites, negotiate contracts or cooperative agreements for space, and install the equipment. They document the COOP station and exposures by collecting the required metadata and entering the information into the CSSA.

Some of the prerequisites when selecting a site are:

- a. Area not subject to flooding.
- b. Availability of communications, such as a phone or computer.
- c. Good exposure of instruments.
- d. Access by observer. It may be necessary to settle for slightly less than the best possible location, if by doing so, it is more convenient for the observer so long as siting does not violate exposure standards.
- e. Continuity of data- It is extremely difficult to judge how much the data will be affected long term by moving instruments a short distance. Every effort should be made to avoid moving instruments. Removing trees, vegetation, etc, is the preferable method if possible, especially when a long period of record has been established.

3.2 Selection of COOP Observers. Establishing and maintaining a COOP observer network is a difficult task. Volunteers are asked to provide services that can at times be quite demanding and for which little or no compensation is provided.

Some considerations when selecting observers are:

- a. Longevity- A person that will likely record data over a long period of time.
- b. Daily Routine- An observer whose daily life fits the observational program with a minimum of inconvenience.
- c. Interest- An observer who shows an interest in the NWS program and is civic-minded.

- d. Dependability- A person who appears to be a conscientious individual and who is willing and able to observe around the same time each day.
- e. Capabilities- An observer with the capabilities to take the required observations and then complete the required forms.

When recruiting new observers, the NWSREP should approach people who may have use for our data. For example, a dam tender would appreciate getting our forecasts of inflow to his reservoir. Another example would be the outpost of a utility company where the attendant could use our general weather forecasts. Cooperating agencies, such as the Corps of Engineers and various river valley authorities, are usually willing to give us the reports from their precipitation networks.

When interviewing a prospect, the NWSREP should:

- a. Explain the fundamental observing duties to the prospect and allow them to make up their own mind about accepting the position. Do not pressure them.
- b. Explain the need for the data gathered and its various uses. Emphasize their importance in taking the observations.
- c. Explain to paid observers the stipend is to offset costs, not a salary.
- d. Look for indications of dependability. Neighbors' opinions may be better than observers' general appearances or self-recommendations.

Once a selection is made, the NWSREP should:

- a. Instruct the new observer thoroughly. Otherwise, a new observer may feel confused and frustrated from the experience.
- b. Be liberal with compliments and make them public if possible, when the observer is doing a good job. Everyone appreciates recognition for their work.

The NWSREP serves as the authorized official for COOP observers and negotiates required contracts.

3.3 Installation of Equipment. The NWSREP installs or supervises the installation of COOP equipment. Standards and details of installation are found in other sections of the NWSI directive system (NWSM 10-1315 and NWSI 10-1302). On occasion, installation directions are furnished with the equipment.

3.4 Training of Observers. The NWSREP trains COOP observers in taking and recording observations. The NWSREP should remain with the new observers to demonstrate proper

procedures until satisfied the observers are competent to carry on independently. Make follow-up visits to ensure satisfactory observational standards and to correct any existing divergent practices. Diplomacy is always necessary when dealing with observers in order to maintain their interest and to retain their services.

3.5 Inspecting and Servicing Equipment. The NWSREP inspects and services climatological and hydrological stations and stations that support meteorological forecast, warning, and public service programs. The NWSREP services and inspects NWS equipment used in the COOP.

3.6 Proper Documentation. It is essential that prompt and correct documentation be made for all COOP stations. The SIR is intended to provide a complete and permanent record of a cooperative station. A report on this form should be prepared for the establishment, discontinuance, or any change in a cooperative station. Detailed instructions for the preparation of this form are given in the CSSA Manual NWSM 10-1313.

3.7 Planning of Travel. Plan travel carefully on a semi-annual and an annual basis for efficient coverage of the area. Anticipate and secure in advance spare parts, supplies, forms, and maintenance manuals for the planned trip. Coordinate travel plans with other offices that may have an interest in COOP stations.

3.8 Inspection Reports. The NWSREP should prepare and keep up-to-date routine cooperative station inspection reports, such as WS Form 10-13-6 or a locally developed form. Inspection data is also entered into the CSSA and instructions for entering the data contained in the CSSA manual NWSM 10-1313.

WS FORM 10-13-6 (2008) (Ref. NWSM 10-1307)		U.S. DEPARTMENT OF COMMERCE NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION NATIONAL WEATHER SERVICE		
Date of Previous Visit	Date of Present Visit	Station	State	
Inspector		Type of Inspection (annual, semi-annual, emergency, etc)	Mileage to/from Station	Staff Hours
Per Diem Cost		Mileage Cost (Including vehicle rental)	Supplies Cost so far this year	
Observer		Home Phone	Office Phone	

Substitute Observer		Home Phone		Office Phone					
REPORTS									
Communication Used		Weekdays		Weekends					
WxCoder									
IV-ROCS									
Telephone									
Radio									
Other									
Instruments Inspected for Condition and Exposure (Check (S) for satisfactory and (U for Unsatisfactory))									
Instrument	Condition		Exposure		Instrument	Condition		Exposure	
	S	U	S	U		S	U	S	U
Max/Min System					Cotton Region Shelter				
Recording Rain Gage					Non Recording Rain Gage				
Evaporation					Automated System (approved)				
Anemometer					Soil Thermometer				
River Gage									
READINGS	Prior to Main		After						
Anemometer									
Evaporation									
Does WS FORM B-44 Need Updating as Result of Inspection (yes/no) enter details in remarks					Has WS FORM B-44 Been Updated in the Past 5 years (yes/no) If no, an update is required				
Observer Checklist									
FORMS (B-91, B-92, B-83a etc)					Y	N	If No, List Action Taken		
Are forms neat, legible and completely filled									

out			
Are forms received in a timely manner			
Are observations received daily			
Is observers error rate at a minimum			
Is observer entering "M" for missing data in the temp and precip columns			
Are temperatures and precipitation entered at ob time listed on B-44			
Are temperature and precipitation values entered on the proper date – not shifting			
Does observer report temperatures to nearest degree using proper rounding techniques			
If MxMn Thermometers are used, is mercury spill kit available and Material Safety Data Sheet (MSDS) provided			
Does observer enter precipitation properly			
Is observer entering 0's when there is no precipitation			
Is observer entering snow depth to the nearest whole inch			
Is observer entering snow fall to the nearest tenth of an inch			
Is observer entering liquid to the nearest hundredth of an inch			
Does the observer continue reporting snow depth until value is a trace			
Does observer provide snow core sample			
Other checks			

Is station on health of network list														
Does soil temperature equipment work properly														
What soil temperature equipment is used														
What soil temperature depths are recorded														
Does evap anemometer work properly														
Does evap thermometer work properly														
Is mercury spill kit available and MSDS provided for mercury and creosote														
Does evap stilling well work properly														
What type evap stilling well is used														
Any backup equipment working properly														
All backup equipment reported on B-44														
Has observer received all qualifying LOS Awards														
Does observer qualify for the Holm Award														
Does observer qualify for the Jefferson Award														
Has observer been instructed on the environmental compliance and safety rules														
Is observer aware of transition plan for paperless obs														
Calibration of Recording Gage (type gage)														
Inches	1	2	3	4	5	6	RP	7	8	9	10	11	12	

	0	5	10	15	19								
Before													
Final													
OIL USED (yes , no) Type:						ANTI-FREEZE USED (yes , no)							
River Equipment													
River Gages	Staff	Wire Weight	Bubbler		Wire Weight Gage (transistorized)								
Type used by observer					Yes	Check Bar when error is 0.06 ft. or more							
Owner name					No	Correct at visit adjusted							
REMARKS (Gage condition, repairs made or needed, etc)													
Supplies Provided													
Additional Supplies Needed (ask to see supplies on hand)													
Signature						Title							

Figure B-1, Inspection Form

4. The Visitation Mission. Because of the infrequency of visits, each should be as complete and thorough as possible to meet all of the needs prescribed for operating the station. This

includes exposure evaluation; inspection, and maintenance of the instruments for data validity and continuity; consultation with the observer for adequacy of supplies and review of observational practices; documentation and recommendations by means of reports; and public relations liaison with the observer, community, associated agencies, and news media relative to the station, the data, observer recognition, etc., as indicated or required. Adequate trip preparation means anticipation of such needs, and successful trip execution means doing all that can be done at the site before moving on to the next station or returning to the WFO. In large measure, the success of the COOP depends on the economy and efficiency of the single, multi-purpose visit.

APPENDIX C – Establishing, Changing and Closing a Cooperative Station

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1. Introduction. This appendix describes the procedures for establishment, change or closure of a cooperative station.

2. Establishing, Changing, or Closing Cooperative Stations. WS Form B-43, Request for Establishment or Change in Status of Cooperative Station is the form used by field offices to request changes at cooperative stations. Regions are authorized to issue separate *instructions* regarding the use and scope of WS Form B-43. Requests for the establishment of stations and changes in observations must be supported by a requirements statement in Block 17, *indicating*

the purpose for which the data will be used and the NWS programs supported. An exception to this policy is that a requirements statement is not needed for stations in the “a” network since these sites are automatically authorized if they help fulfill the 25-mile spacing criteria.

3. Procedures for Numbering and Naming Cooperative Stations. COOP station numbers are assigned by NCDC after receiving the B-43 to identify the stations and to facilitate alphabetical listings. Station numbers consist of eight digits: e.g., 18-1125-06 or 10-1124-10. The first two digits identify the state (e.g., 18 is Maryland, 10 is Idaho), the middle four digits are arranged alphabetically by station name whenever possible, and the last two digits identify the climatological division in which the station is located. See Table G-27 NWSM 10-1313 CSSA for state numbers.

The NWSREP selects and changes station names. The purpose in determining the name is to help pinpoint the station location in terms familiar to the public. Whenever practicable and reasonable, associate the station with the name of the nearest community within the state recognized by USDOC through Census. This is to be considered the primary name.

In the following situations, a secondary name is needed to help identify a station.

- a. The station name, once chosen, should be used consistently on all reports. The official station name should be on file in CSSA.
- b. Two stations are located in the same town or city. Use a descriptive secondary name familiar to the area for one station, such as Ohio State Farm or State University.
- c. The station is located more than one-half mile from the post office building or center of the community. Either add a secondary name, as above, or use the distance in whole miles and direction relative to true north to 16 points of the compass from the post office or community center to the data site, such as Lutz 4 ENE. Secondary names are not required if the station is within the city limits and no other station uses the primary name.
- d. There are two stations within one-half mile of the post office and there is no clearly descriptive local secondary name. Use numbers 1, 2, 3, etc., such as Lutz No. 2. Two stations this close to each other either should be incompatible or should not observe the same parameters. One may observe river stage and the other temperature and precipitation.

Multiple service stations are those which participate in more than one task (such as recording precipitation, rainfall reporting, river reporting, etc.) and which have the same observer. Consider each of these as a single station with the same name if the instruments are at approximately the same site.

4. Relocation and Moves:

4.1 Definition. A station is considered relocated whenever the observing equipment is taken from one location and placed at another.

4.2 Compatibility Determination. A climate data compatibility determination must be made at the time of the observation site move so that a station number can be assigned as soon as data reporting resumes. The preferred method for determining climate data compatibility is to conduct parallel observations at the old and new sites (in compliance with NWSI 10-2101, Inter-comparison of Hydrometeorological Instruments and Algorithms). This approach may not be feasible, but in the event that parallel observations are performed, the results are usually not available at the time of the relocation, i.e. when the new station must be assigned a data reporting identification number. Thus, one must use alternate means to determine data compatibility outlined in this section.

Climate data compatibility is maintained when the difference in daily maximum and minimum temperatures and 24-hour precipitation (including snowfall) between the original location and the new location are expected to be equal to or less than the difference in measurements that would occur by simply replacing the instrumentation. For example, the functional precision of the MMTS over the vast majority of the temperature range being measured is about 1° F. Thus, if the difference between two locations is expected (or shown by parallel testing) to be equal to or less than that for the daily maximum and minimum temperatures, data compatibility for temperature between the locations is satisfied.

In cases where an analysis of parallel observations is unavailable (the vast majority of cases), climate data compatibility is determined by:

- a. Comparing the differences in location between the new and original equipment (as described on Rendition 1 of the Station Information Report), and,
- b. Considering a number of factors related to climate data continuity. See Table C-1.

A move is always assumed to be incompatible if the new equipment location is greater than 5 horizontal miles from the original equipment location or the difference in elevation is 100 feet or more.

Station moves where the new equipment location is within 5 miles of the original site and the difference in elevation is 100 feet or less are also assumed to be incompatible unless they pass a data compatibility evaluation (Table C-1). While most re-locations are expected to exhibit data incompatibility, there may be cases when the data record from the new location may be a faithful continuation of the climate record from the old location. However, the compatibility evaluation will be conducted for all relocations of less than 5 miles and/or 100 feet unless the move is deemed incompatible by the NWSREP.

The NWSREP will convene an ad hoc committee to conduct a thorough evaluation. The committee hereafter referred to as the WFO Data Continuity Committee (DCC) (one DCC for

each WFO) will be comprised of one representative from each of the following groups:

- a. WFO NWSREP (chair). OPL/DAPM
- b. NWS Regional COOP Program Manager (co-chair) and Regional Hydrologist if applicable..
- c. NWS Regional Climate Services Manager (backup co-chair).
- d. Appropriate Regional Climate Center.
- e. American Association of State Climatologists Recognized State Climate Office (if a member is available).
- f. NCDC, only when results of parallel testing are available for the evaluation, or when a new station identifier must be issued.

The DCC determines compatibility on an **advisory** basis by applying a compatibility checklist (Table C-1). Relocations that satisfy the conditions on the checklist may then be declared data compatible by the NWSREP (chair, DCC). The checklist will be entered into the official metadata record for the station and be available as part of the site's historical record as funds are available.

For climate data continuity purposes, the establishment of a station near the site of a previously-closed site will be treated in the same manner as other relocations. That is, the station number of the previously closed station can only be used again if data continuity is found to be maintained between the two locations through the checklist process of the DCC. In such cases, there will be an acceptable period of missing data between the closure of the historic site and the opening of the new site.

4.2.1 Compatible Move. A move is considered to be compatible when data compatibility is maintained as demonstrated by the process described in Table C-1. An example of a compatible relocation occurs when an observer quits and the equipment is moved to a neighbor's yard or to some other location and compatibility is maintained per the DCC's validation of the checklist conditions.

Prepare and submit an SIR to document all equipment moves (see NWSM 10-1313).

4.2.2 Incompatible Move. A move is considered incompatible when observing equipment is moved and the data from the new location are judged not climatologically compatible with data from the original location of the station, i.e., the first rendition of the SIR. Incompatible moves require two actions: the former data site is closed and the new site is treated as a new station establishment. The new site receives a new station number, a new primary and/or secondary name, and a new NWSLI.

* All elements must be compatible. If temperature is compatible but precipitation is not then the move is incompatible.

Original Station COOP ID (6 digits)		Data Continuity Advisory Committee (DCC) Members					
Relocated Station COOP ID (6 digits)		NWSREP					
Supervising WFO		NWS Regional COOP Program Manager					
NWSREP's Name		NWS Regional Climate Services Program Manager					
Date of Evaluation		Regional Climate Center Representative					
No.	Data Continuity Criteria	Yes	No	Reviewer	Org.	Date	Comment
1	Equipment ≤ 5 horizontal miles from original location*						
2	Equipment ≤ 100 feet different in elevation from original location*						
3	Geographic setting of relocated and original stations are similar (i.e., urban, suburban, rural, wilderness) and surrounding environmental characteristics (asphalt driveway, vegetation, buildings, steep slopes, bodies of water, and solar exposure) are also similar. Environmental categories subjectively determined using existing field						

	observations/knowledge, photography, GIS land use mapping, etc.						
4	Relocated and original topographic settings are the same (considered in the context of basic categories [i.e., valley, crest, slope, and plateau]). Topographic categories are subjectively determined using existing field observations, photography, topographic charts, and GIS land use mapping.						
5	The relocated station site has a topographic “slope” orientation (north, south, east, or west) that is ≤ 90 degrees different from the original site (as defined by Rendition 1). A slope exists if the average ground slope within a 200-foot radius of the station averages $> 2^\circ$ from the horizontal (flat surface). This condition can be subjectively evaluated.						

Table C-1, Station Relocation Data Continuity Evaluation Checklist- check/consider the following:

- a. Page C-5, under Data Continuity Criteria, item one; change location * to Rendition 1.
- b. Page C-5, under Data Continuity Criteria, item two; change location * to Rendition 1.
- c. Page C-5, if “location *” has some meaning, footnote said meaning.

4.2.3 Summary of Station Relocation Naming and Numbering Procedures. The convention for station identification following relocation is based primarily upon the compatibility

determination between the original and new locations. If the two sites are climatologically compatible, then the station retains its number following the move. If the sites are incompatible, then the new site must receive a new station number. In such cases, formal procedures should be taken to close the original site and establish the new site. Two SIR's will be issued, one for the closing of the station with the old name, and one for the creation of a new station with the new name, number, and SID.

For stations that relocate within the same community the primary name should be retained, but the secondary name should be changed to reflect its new location. Stations that relocate outside the community will adopt the name of the new community.

For the rare situation, when the community changes its name but the station does not move, the station name should be changed but include the former name of the station in parentheses following the new name (e.g. new name (old name)). No formal action should be taken to close the original site and establish a new site. The rules for the naming and numbering following relocation are summarized in Table C-2.

Station Change	Station Name	Station Number
No station relocation Observing program and/or instrumentation changed; (e.g. max and min thermometers installed at precip stations)	Station name retained	Station number retained
No station relocation Community or post office name changed	Name changed to conform to new name of community. Old name included in parentheses following new name [e.g. new name(old name)]	Station number retained
Station relocation Station remains within community. Climatologically compatible	Primary name retained; secondary name changed if needed to conform to new orientation to community (e.g. Jonesville 1W to Jonesville 2SE or State Univ. to Jonesville Park)	Station number retained
Station relocation Station moves to new community. Climatologically compatible	Name changed to conform to name of new community.	Station number retained
Station relocation Station moves to new community. Climatologically incompatible	Old station closed, new station established.	New station number and SID assigned

Station relocation Station remains within community. Climatologically incompatible	Old station closed, new station established with new secondary name. Primary name retained; secondary name changed (e.g. from No 1 to No 2 if within ½ mile of city center) or to reflect orientation to community (e.g. Jonesville 1W to Jonesville 2SE or State Univ. to Jonesville Park)	New station number and SID assigned
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Table C-2, Relocation Naming and Numbering.

5. Determining Latitude and Longitude of a Station. The latitude and longitude of a station to the nearest second using a Global Positioning System (GPS) instrument as referenced from the primary rain gauge, or observing instrument if no rain gauge. The Federal Standard Datum to be used in determining horizontal station location coordinates (Lat, Lon) is the North American Datum (NAD 1983).

*When using GPS equipment, ensure that the proper Datum are selected so that the resultant coordinates are compatible with GIS system standards for mapping.

6. Determining Elevation of a Station: Elevations should be determined using U.S. Geological Survey sectional charts from, either CD ROM or paper versions, if no other markers are available. The elevation of a cooperative station is the mean sea level elevation of the ground in a 20-meter (60 ft) circle around the primary rain gauge and is entered to the nearest whole foot. Elevations below sea-level are preceded by a minus sign. In the case of a station having only a river gauge with no rain gauge, the elevation entered will be the ZERO DATUM of the gauge.

*When determining the elevation of a station from USGS topographic maps, check at the bottom center of the map to see what vertical datum was used. If the datum on the map is the National Geodetic Vertical Datum of 1929 (most topographic maps are based on this datum) you need to convert the station elevation from this older coordinate system to the new federal standard NAV88 coordinate system. This is easily accomplished by going to the following web url to make the adjustment:

<http://www.ngs.noaa.gov/TOOLS/Vertcon/vertcon.html>

7. Procedures and Instructions for Obtaining Station Identifiers (SID). While the identification number of COOP stations is assigned by NCDC, the SID is assigned by the Office of Operational Systems (OPS). Issuances, changes, and deletions of SIDs are requested via Internet using the National Weather Service Location Identifier (NWSLI) Transaction Form. The web address is: <http://ops13web.nws.noaa.gov/>. COOP stations are assigned SIDs, usually containing five characters; the first three identify the city or town, and the last two are a letter and number identifying the state; e.g., N2 for Nevada.

Submit a SID request for any cooperative station that is established, moved, renamed, or closed, and to correct errors in the NWSLI database. Assigned SIDs establish a directory of the locations where observations are taken. All cooperative stations will be listed in the NWSLI database.

All NWSLI requests are submitted for approval to the OPS through the RH. Instructions for completing the NWSLI Transaction form can be found at the listed web address in this Section.

When cooperative stations are moved or relocated, the following procedures will be used:

If data from the new location are considered climatologically compatible with the data from the old site, the SID will not change.

- a. Even if a new SID is not required for a compatible move, a NWSLI Transaction Form will be required to change information such as latitude, longitude, etc., which did change as a result of the relocation.
- b. A new SID will be required whenever a station move results in incompatible data. In cases of an incompatible move, two Request Forms are required:
 - (1) To delete the old SID, and
 - (2) To establish a new one.

8. Updating CSSA Files. The CSSA system is a collection of COOP station information residing in a database on a centralized server at NWSH. The system is designed to provide for data entry and manipulation, observer payroll, reporting and other tasks associated with the NWS Cooperative Program. The files are updated as follows:

- a. When visiting a cooperative station, the NWSREP reviews and verifies all information on the current rendition of the WS Form B-44 for the station. If changes necessitate an update of the CSSA files, the NWSREP prepares and submits a new rendition of the WS Form B-44. See NWSM 10-1313 for instructions on preparing, submitting, and approving the WS Form B-44.
- b. WS Form B-44 is designated preliminary until final approval from NCDC. Quality control and approval are accomplished in the following order; MIC level, RCPM level, NCDC level.
- c. When approved by NCDC, the form changes from preliminary to final. All levels are automatically notified via e-mail.

If the form is rejected at any level, it returns to the NWSREP for his/her action. Once corrections are made, the NWSREP resubmits the form and the process begins again.

9. Inactive Stations. A station becomes inactive if no observations are taken, but observations are expected to resume within 6 months. If a station remains inactive longer than 6 months, it should be closed. Inactivate a station by submitting WS Form B-44 and state the Reason for Report as “Inactive Station.”

10. NWS Funded Stations. Re-activate an inactive station by submitting WS Form B-44 and state the Reason for the Report as “reactivate an inactive station.” When inactive stations are closed, submit WS Form B-43, Request for Establishment or Change in Status of Cooperative Station, for approval, unless exempt by the RH. Prepare a WS Form B-44 after closure has been approved. The instruments should be removed and retained in the NWSREP's stock for future use.

11. Cooperative Station Services at Stations that Report Basic Observations. Observations taken at these stations, where such data are required for aircraft flight operations, are frequently used in the “a”, “b”, or “c” networks, and some instruments may be serviced by the NWSREP.

Occasionally there are cooperative maintenance services rendered at stations also reporting basic observations. Continue coop servicing if the basic observation stations are consolidated, moved, or closed. Such services are hourly or daily precipitation, maximum and minimum temperatures, evaporation observations, etc. Before taking action to change a station status, any maintenance services are reviewed to determine if observations should continue to meet cooperative network requirements.

Take the following action should a basic observation station close:

- a. “a” Service- Establish a cooperative station at the same or a compatible site (or, if necessary, at the closest possible incompatible site) if it is determined that the station is needed in the Coop network.
- b. “b” Service- Review the need for continued service with the responsible Hydrologic Service Area (HSA) office, the River Forecast Center (RFC), and the regional hydrologist.
- c. “c” Service- Review the need for continued service with the appropriate WFO. If the need for service continues, a cooperative station may be necessary.

APPENDIX D – REIMBURSABLE STATIONS

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1. Introduction. This appendix describes the reimbursable networks and general procedures to support and fulfill the agreements with other Federal and State agencies needing (NWS) services.

2. General. In many cases, it is more economical for the NWS to service observing equipment belonging to other government agencies than for these agencies to provide the service. For example, it may prove more cost effective for a NWSREP to maintain NWS, COE, and Bureau of Reclamation (BOR) rain gauges in the same general area than for each agency to service stations with their own personnel. Stations belonging to other agencies (federal or state), but serviced by NWS, are known as reimbursable stations (see National Oceanic and Atmospheric Administration (NOAA) Finance Handbook, Chapter 10). The costs of inspecting and maintaining these stations are reimbursed by the government agencies served. This appendix is in harmony with NOAA procedures but pertains specifically to cooperative stations.

3. Reimbursable Station Proposals. Proposals from other government agencies or organizations for establishing new reimbursable programs or for making major changes in existing reimbursable accounts must be approved by WSH. Minor changes, e.g., opening, closing, or relocating individual stations, are approved by the RH.

Each spring the National Cooperative Program Manager (NCPM) or designee initiates the reimbursable process. The RCPM or designee will complete the cost estimates by the end of August. The NCPM completes the process by the end of September.

Each year the regions, by memorandum, will inform the reimbursable agency of the expected cost for operating the reimbursable sponsored stations for the upcoming fiscal year. Agencies respond in writing, agree to the proposed charges and services or agree in part and indicate necessary changes. Changes at reimbursable stations are approved at the regional level, provided the following conditions are met:

- a. The proposal is minor in nature and approved by the reimbursable agency. Minor changes include adjustments to observer pay, establishment or closure of one or two stations, replacement of less expensive equipment, etc.

- b. The reimbursable agency agrees to pay any increased cost.
- c. The WS Form B-43, Request for Establishment or Change in Status of Cooperative Station, requests the change and clearly shows coordination with the reimbursable agency.

When a reimbursable station cannot be operated as indicated in the annual reimbursable agreement, the NWSREP should coordinate the change with the applicable reimbursable agency and, when appropriate, initiate action to make adjustments to the reimbursable charges.

4. Description of Reimbursable Networks: This section describes the networks established as a reimbursable.

4.1 COE Networks. COE networks of precipitation gauge and river stage stations were established in 1937 to provide more complete information for the COE than could be obtained from NWS funded networks. These networks are FC-2 through FC-58. Table 1 contains the 39 networks and Table 2 lists the divisions and districts in which these COE networks are located. The tables are located at the end of this appendix.

When an FC-1 station is discontinued, the savings created should be used to establish a new FC-1 station mutually agreeable to the NWS and COE. This constitutes an offset and would not require approval beyond the NWS regional and COE district levels.

4.2 Bureau of Reclamation (BOR) and Other Reimbursable Networks. Reimbursable agreements covering BOR networks are based on a Memorandum of Understanding between the agencies, dated February 13, 1948, which provides for the NWS to establish and operate networks of meteorological cooperative stations to meet the needs of the BOR. Installations may include recording, storage, and standard 8-inch precipitation gauges as well as temperature, evaporation, solar radiation, and other equipment.

The task symbols for BOR tasks are Interior Reclamation Precipitation Network (IRPN). Network symbols, names and other networks are shown in the table below:

<u>Symbol</u>	<u>Network Name</u>
IRPN-1	Pacific Northwest Region
IRPN-2	Sacramento
IRPN-4	Upper Colorado
IRPN-6	Region 6 (Billings, Montana, office)
IRPN-7	Region 7 (Denver, Colorado, office)
IRPN-8	McGee Creek (Amarillo, Texas, office)
IRPN-9	Choke Canyon (Amarillo, Texas, office)
IRPN-10	Brantley Dam
BPA-1	Bonneville Power Administration (see Section 4.4)
SJRA	San Jacinto River Authority

4.3 Bonneville Power Administration (BPA). The BPA agreement is based upon the Memorandum of Understanding executed November 26, 1957, and calls for the operation and maintenance of temperature and/or precipitation stations for basic data and/or reporting services for developing forecasting procedures for stream flow in the Pacific Northwest.

5. Responsibilities for Establishing and Closing Reimbursable Stations:

5.1 Flood Control Networks. Reimbursable Networks FC-2 through FC-58 were established and maintained by NWS for COE to meet their data requirements, with COE reimbursing NWS for maintenance expenses. All FC stations are placed in the "b" network.

5.2 Establishment. If COE proposes a new FC network the Regions will assign the FC network number in numerical order through coordination with OS7. e.g. FC-59.

5.3 Changes. Because FC's were originally established by COE to meet COE data requirements, any changes such as site moves in the FC network, should be coordinated with COE.

5.4 Closure. Stations in FC and **other networks** may have to be discontinued due to the unavailability of observers, poor observation quality, replacement by automated stations, or because the stations no longer serve their intended purpose. The closure of stations in FC networks should be coordinated with the applicable COE office. Closure of stations sponsored by a reimbursable agency should be coordinated with that agency. The district COE office should be encouraged to review requirements annually and make recommendations for adjusting the networks.

6. Preparing Reimbursable Cost Estimates for the Next Fiscal Year. In the spring of each year, the National Cooperative Program Manager (NCPM) or designee will prepare estimates of costs for establishing new reimbursable stations and servicing existing ones. These estimates are then coordinated with and approved (with revisions, if necessary) by the other agencies and the Regional representative. WSH estimates are for an average station and are intended for use as general guidelines by the regions. Actual costs may vary among regions and stations.

Factors causing costs to vary include distances traveled to stations, differing overheads among regions, etc. The NCPM or designee will supply each region with a separate spreadsheet listing equipment, expenses and a line by line explanation for the costs on the guidance sheet.

7. Procedures for Estimating Reimbursable Cost. This section describes what charges are apportioned among NWS and reimbursable networks. In the spring, each region receives a detailed explanation from the NCPM and may be adjusted by each Region. Agencies reimbursing the NWS for maintaining their observing sites are billed for the following:

- a. NWSREP salary (hours worked, surcharges, overhead)
- b. Supplies, shipping, postage.

- c. Inspection and maintenance of equipment.
- d. Vehicle cost, mileage.
- e. Per diem travel.
- f. National Logistics Supply Center (NLSC) surcharge.
- g. Processing and Printing for NCDC.
- h. Communications.
- i. Observer salary.
- j. Contractual services.
- k. WSH overhead.

Communications, observer salary, and contractual services vary for each site and should be added to the estimate by the Regional representative.

Installation/relocation at the request of the sponsoring agency is considered a nonrecurring cost and will be billed directly to the sponsoring agency.

7.1 NWSREP Salary. This is derived from the federal salary tables and averaged for each Region. The salary also includes surcharges and overhead. Adjustments may be calculated by the sponsoring agency and the Regional representative for a specific site.

7.2 Supplies, Shipping and Postage. Included for these costs are supplies needed for the station and costs for postage and shipping.

7.3 Inspection and Maintenance of Equipment. Each spring, the NCPM sends estimates of the average cost of installing a new reimbursable observing site and maintaining an existing one to the regional offices. These estimates include labor (installation for new stations and inspection and maintenance for existing ones) and equipment costs. The maintenance cost is average costs over a two year period and intended as general guidance.

The National CPM prepares equipment costs for the following types of observing sites: Fischer & Porter gauge, standard rain gauge (SRG), universal gauge, temperature station, temperature and precipitation stations (with an SRG), and evaporation station. The costs of instruments and replacement parts are obtained from the Engineering Division.

7.4 Vehicle Cost/ Mileage. Vehicle cost is based on GSA rent charged for the vehicle each month. Mileage logged for the previous year is averaged and may vary for each station.

7.5 Per Diem Travel. Per Diem is averaged for each Region and for the sites listed in Section 7.3. Per Diem may be adjusted by the Region for each site.

7.6 NLSC Surcharge. This is applied to equipment cost based on storage and overhead.

7.7 NCDC Processing and Printing. NCDC reviews the publication costs annually.

7.8 Communications. These are charges for reports to an NWS office. The charges can be based on telephone usage; whether it is automated or manual; and on computer technology. The reimbursable agency is billed for its prorated share of the line and equipment cost. This cost is not included in the estimates provided by WSH.

7.9 Observer Salary. This is the actual amount paid to the observer, if any. This is not included in the estimates provided by WSH.

7.10 Contractual Services. Some locations may require a contract such as electrical hookups, weed clearing, etc. This is not included in the estimates provided by WSH.

7.11 WSH Overhead. WSH negotiates overhead with the sponsoring agency each year if needed. These funds are not included in the Region estimates.

8. Reimbursable Reporting Services Provided by NWS-Funded Observing Sites. In some cases, a reimbursable reporting service is provided by an NWS-funded cooperative station. If region agrees no reimbursable charge should be made for the maintenance of the equipment used for the reporting service, no charge will be made to the reimbursable task for station visitation. Essentially, the region agrees to support the additional cost, if any, incurred by the reporting service. Observer fees and communication costs should be adequately provided in the proposal and charges made accordingly.

If a reimbursable reporting service is provided by a cooperative station but reimbursable maintenance for this service is agreed to by the other agency, fractional visits should be indicated and the time on visits relating to the reporting service will be prorated to the reimbursable task concerned. Visits made principally for the superimposed reporting service will be charged entirely to the reimbursable task.

9. Billing. For billing purposes, the Regions negotiate charges by networks to the COE district office. After finalizing the charges, the Regions send the estimates to WSH. WSH then coordinates with COE headquarters for the COE lump sum payment to cover the expenses of all networks. The COE headquarters office which pays the NWS for these services is reimbursed by each COE division and district rather than by each network. The National CPM office monitors reimbursable accounts, tracks expenses and assists in detection of billing errors. The National CPM office converts the lump sum payment to each Regions share.

BOR reimbursable estimates are negotiated at the Region level. Regions send the estimates to WSH for information purposes. BOR sends a lump sum payment to WSH and the funds are distributed to each Region as indicated in Regions final negotiated estimates.

10. Task Numbers. Reimbursable costs are charged to task numbers assigned to each network. A WFO that has a reimbursable site can obtain the proper task number from the Administrative Management Division at their Region.

11. Prorating Travel Costs. The NWSREP frequently services climatological, hydrological, and reimbursable observing sites on the same, or series of, trips. These costs are prorated in proportion to the amount of time, funds consumed for each network, and to the appropriate task number. Prorating uses the following elements:

- a. The NWSREP's time.
- b. Per diem.
- c. Any contractual services.
- d. Travel expenses if using POV.

12. Procedures for Replacing and Upgrading Equipment:

12.1 Equipment for NWS Funded Stations. The following procedures will be observed in the replacement and upgrading of equipment:

- a. Replacement in Kind. Replacement of equipment no longer in satisfactory condition will be made through regular requisition procedures. When replacing equipment, indicate the name of the station on the requisition. Do not use this procedure to obtain used equipment for informal or unofficial station installations.
- b. New or Upgraded Equipment. New or upgraded equipment must be approved in advance by the appropriate regional office and WSH. Requests for additional or upgraded equipment at a station will be submitted to the regional office using WS Form B-43 or a memorandum.
- c. Equipment Not Previously Used at NWS-Funded Stations. Observations from this equipment can be disseminated, published, and archived in place of NWS equipment if comparison testing determines the observations are comparable and WSH approves the equipment. Follow NWSI 10-2101 for comparison testing.

12.2 New Reimbursable Equipment. The NCPM will determine billing for new equipment. If a new system by an NWS initiative is fielded e.g., Fischer and Porter Upgrade (FPU), the sponsoring agency will not likely be billed. If a sponsoring agency requests the equipment, the agency will be billed directly for equipment and installation costs by the Region. When parts for upgraded equipment need replacement; the usual practice will be to add the new costs to the maintenance estimates.

12.3 Replacing Privately-Owned Equipment. Privately-owned equipment at a station remains the responsibility of the owner. Should the owner be disinclined to replace the equipment, the regional office should review the services provided with existing guidelines. Upon completion of the review, either provide equipment or cease maintenance and use of the data.

FC	NAME	FC	NAME
2	Lower Mississippi River	28	Mooringsport Reservoir
5	Willamette River	29	Iowa River
6	Yazoo River	30	Roanoke River
7	Red River	32	Middle Mississippi River
8	Wallace Lake Reservoir	33	Kansas City District
9	Middle Arkansas River	35	Leon River
10-12	Ohio River	36	Savannah River
13	Mobile Reporting	39	Genessee River
15	St. Francis River	40	Hords Creek Reservoir
16	Lower Arkansas River	42	Guadalupe River
17	Snake River	43	Intra-Coastal Canal
18	Delaware River	44	Neches River
20	Ouachita River	46	San Francisco District
21	Upper Trinity Basin	49	Philadelphia District
22	Brazos River	50	Omaha District
23	North Concho River	51	Puerto Rico Reporting
24	Buffalo Bayou	52	Norfolk District
25	Bayou Bodcau Reservoir	53	Pearl River Valley
26	Texarkana Reservoir	58	Heppner Project
27	Ferrell's Bridge Reservoir		

Table D-1, Names of Networks

Division	Districts in Division	District Headquarters	Division	Name of Networks
LMVD	LMK	Vicksburg	<u>Lower Mississippi Valley</u>	2, 6, 20, 53
	LMN	New Orleans		8, 25, 28
	LMS	St. Louis		32
MRD	MRK	Kansas City	<u>Missouri River</u>	33
	MRO	Omaha		50
NAD	NAO	Norfolk	<u>North Atlantic</u>	52
	NAP	Philadelphia		18, 49
NCD	NCB	Buffalo	<u>North Central</u>	39
	NCR	Rock Island		29
NPD	NPP	Portland	<u>North Pacific</u>	5, 58
	NPW	Walla Walla		17
ORD	ORH	Huntington	<u>Ohio River</u>	10
	ORL	Louisville		11
	ORN	Nashville		12
SAD	SAJ	Jacksonville	<u>South Atlantic</u>	51
	SAM	Mobile		13
	SAS	Savannah		36
	SAW	Wilmington		30
SPD	SPS	Sacramento	<u>South Pacific</u>	46
SWD	SWF	Forth Worth	<u>Southwest</u>	21-23, 26-27 35, 40, 42 44
	SWG	Galveston		24, 43
	SWL	Little Rock		16
	SWT	Tulsa		7, 9

Table D-2, Divisions and Districts in the COE Network

APPENDIX E – Data Management and Quality Control

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1. Introduction. The COOP observer provides the government with data representing a true picture of the environment in which we live. As a result, the importance of this data has increasing value for all citizens, government, industry research, etc. This appendix describes the methods for reporting, publishing, and the quality control of cooperative data.

2. Methods of Reporting Data. Many of the “b” and “c” network stations provide real-time or near real-time data to NWS offices by via telephone, by a computerized data collection system, or via the Internet. Observers mail their data to the NWS monthly. Some “b” network stations are entirely automatic and telemetered primarily by telephone, satellite, or VHF radio. Nearly all “b” and some “c” network observations, whether manual or telemetered, are sent to a River Forecast Center (RFC). Information also goes to other offices needing the data as input to hydrologic models, to support hydrologic forecast and warning operations, and/or water resource forecasting. Station climate records are authorized to come from paperless transmission modes (PC/web, telephone, etc.) as long as the following requirements are met:

- a. The paperless data stream creates a pseudo monthly data summary accessible by observer and the NWSREP alike on a daily basis,
- b. The observer electronically **verifies** the pseudo monthly climate data summary before submission, at the end of the calendar month.
- c. Each month, the NWSREP electronically **verifies** they have reviewed and approved the data before it is transmitted to NCDC. Electronic forms will be **verified** by the observer within 5 days after close of a calendar month and the NWSREP will have all forms verified before the 25th.

The NWSREP will encourage existing COOP observers to switch over to paperless data transmission, either via PC and web, or by phone. Observers with a PC and web access and/or touch-tone phone will be **encouraged** to use the web mode. Observers with only touch tone phone service will be **encouraged** to use a telephone based data transmission system. In the spirit of years of dedicated volunteer support to the nation, observers are not required to switch from the current paper and pen process. This policy is valid only in the four contiguous U.S. NWS regions.

New COOP observers will be required to use paperless data transmission to become part of the published climate network unless they are located in regions not having reliable paperless data transmission systems (Alaska and Pacific at this time). If a new observer has phone service only, they will be **encouraged** to switch to a PC/web transmission if they obtain web access at a future date.

Observers will be provided the training necessary to decide when they can make the change to paperless data transmission and how to successfully transition to this process from paper.

In cases where an observer uses more than one observation time e.g., 7 a.m. to 7a.m. for NWS operations and 10 p.m. to 10 p.m. for climate record, the NWSREP will ensure the published climate record times are identified clearly for NCDC in the station's metadata. Usually, the published climate record is the 24-hour period closest to the standard climate calendar day (midnight-to-midnight).

3. Publications Available to Cooperative Observers. Several publications are available to cooperative observers for review of their published data, and as a technical reference. Showing observers how their data are used also reflects an appreciation for their effort. These publications are intended to provide important feedback to encourage observing excellence and continued participation in the cooperative program. Published data is available from the following web site:

<http://www.ncdc.noaa.gov>

4. Publishing Cooperative Station Data. This section establishes the criteria to determine which cooperative stations have their data published by NCDC. In general, NCDC publishes data from official cooperative stations whenever the region indicates a requirement provided the

station meets established criteria.

4.1 Criteria for Publishing Cooperative Stations. Publication of cooperative data will meet the following criteria:

- a. The station is an official cooperative station with an assigned station index number.
- b. A current WS Form B-44 for the station is on file at NCDC and indicates the type of data to publish in the CD and/or HPD, e.g., daily precipitation in the CD or hourly precipitation in the HPD.
- c. Official observation forms, charts, and tapes are used to record observational data. Computer-produced forms or forms used by other agencies may be used if the form has the same format as NWS cooperative program forms.
- d. The observing equipment is of a type approved by the NWS and that meets the NWS standards for siting and instrumentation.
- e. The station receives routine visits and/or maintenance by a NWSREP.
- f. The station must be part of the "a", "b", or "ab" network to be considered for publication.

4.2 Publication of Soil Temperatures. NCDC publishes soil temperature data in the CD if furnished by a cooperator. The conditions that must be met for these data to be considered acceptable for publication are:

- a. Exposure and instrumentation are considered adequate by the Regional NWSREP.
- b. Records are made available in time for regular publication.
- c. Records are furnished in final corrected form by the cooperator to be retained in NOAA files.
- d. A station's distance from other stations approximates that of either the "a" network sites, i.e., 25 miles; or was established specifically to compare data between sites closer than 25 miles.
- e. A station is fully documented, including soil type, aspect, slope, ground cover, and instrumentation.
- f. Soil data are obtained at one or more of the World Meteorological Organization-approved depths (2, 4, 8, 20, 40, 60, or 72 inches) or at approximately similar depths. The 4-inch depth is most frequently observed.

- (1) At the 2, 4, and 8-inch depths, data will be published as either daily maximum and minimum values or as observed values at no more than two fixed observation times a day. At the 20, 40, 60, or 72 inch depths, data will be published only as observed values at one fixed observation time a day.
- (2) Data will be published if obtained under either bare soil or cropped native grasses.
- (3) Data from soil temperature stations operated or funded by a NOAA component will be processed and published provided all conditions are met and funds to support the work can be transferred from the NOAA component collecting the data.
- (4) Soil temperature data from stations or depths not meeting processing and publication criteria will be accepted, but only for archiving and other applications.

4.3 Publication of Data from New Observing Programs. When new or expanded observing programs are planned requiring additional regional funding for data processing and publication, the plan will be coordinated with NCDC and included in the budget request for the new or expanded program.

4.4 HPD. The publication of hourly precipitation data in HPD is basically supported by the FC-1 and reimbursable networks. Requests from other agencies for the publication of data in HPD will be approved on the basis of NCDC's current cost estimates for data publishing. Costs are funded by the requesting agency.

4.5 NCDC Archiving of Non Published Observations. All or part of a cooperative station's data may be considered official, yet not be published. Official data that are non-published are archived by NCDC, but not digitized or quality-controlled. They are provided to users with the disclaimer of "best available" record. Instances where non-published status may be used:

- a. Reporting of automated stations, such as river gauges
- b. "b" network stations that also observe temperature (only the precipitation is published),
- c. Trial periods for new observers to determine the quality of observations
- d. Recruitment of promising new observers who are expected to replace current observers in the near future.

5. Quality Control. One of the most important tasks of the WFO/WSO/DCO is ensuring the accuracy of recorded and reported observations and the users receive the data promptly.

Otherwise, the value of the observing program degrades significantly or becomes useless. Forms and charts not received at NCDC by their cutoff dates are not published. However, data will be archived and annual statistics will be produced if the form is received prior to annual processing. If a monthly report is incomplete or missing, no monthly or annual precipitation total can be determined or published, nor can an average annual temperature be published.

The NWSREP ensures:

- a. The quality control of observation forms and Fisher Porter tapes monthly.
- b. The prompt delivery of observation forms to the NWS by the 5th of the next data month.
- c. Prompt delivery to NCDC from the NWS by the 25th of the next data month.
- d. The prompt delivery of Fisher Porter tapes by the 25th of the following month.
- e. The quality control of the RR3 message daily.
- f. Full use of Datzilla to report post-submission errors and track resolutions.
- g. Data completeness, data validity and quality assurance through Health of the Networks.

When reviewing observation forms after the end of the month, use the methods highlighted in WS Form 10-13-6 in Appendix B. When errors are noted, draw a line through the error (ensure recorded (error) is readable) and annotate the form with the correct information. Corrections should be placed in the respective remarks section of the form rather than in an adjacent data column or overwriting the original error.

5.1 Finding and Correcting Observing/Reporting Errors. Final responsibility for reviewing WS Forms and HPD tapes lies with NCDC. NWSREPs review forms from observers each month, making mental or written notes of any problems with the data but the best control of data is accomplished closest to the source, the coop observer. Problems requiring urgent attention (significant errors in reporting procedures, late or missing data, etc.) should be discussed as soon as practical with the observer by telephone, e-mail, or in person. Less urgent problems should be dealt with during the next scheduled (annual or semiannual) station inspection.

Telephone the observer in advance of visits to ensure they are home. The NWSREP has the responsibility to arrive at the scheduled time. In case of a delay and out of courtesy, the NWSREP should call the observer.

If a visit with the observer is not possible at the time of the routine station inspection, telephone calls may have to suffice.

5.1.1 Common Observing Errors. Common errors are listed below. Errors d through g are often detected, flagged, and adjusted by NCDC.

- a. Reporting snow fall (new snow) only in whole inches or to the nearest quarter inch, instead of in tenths of an inch.
- b. Omitting entries of the total depth of snow on the ground (especially in the days following the snowfall), or reporting this in tenths of inches. Snow depth is to be recorded in whole inches
- c. Reporting Maximum/Minimum Temperature System (MMTS) readings in degrees and tenths. Temperature is recorded in whole degrees (F).
- d. Missing a day's observations, then entering subsequent readings on the wrong (usually the preceding) date.
- e. Estimation of temperatures not recorded or substituting temperatures from a nearby or non-vented thermometer.
- f. Shifting- Observers that take readings in the morning or evening (not midnight) may confuse a calendar day with an observation day (crosses two days) and incorrectly shift observations to the previous day
- g. Inconsistency - most common temperature inconsistencies are:
 - (1) Recording a maximum temperature lower or a minimum temperature higher than the "at observation temperature" of the previous date.
 - (2) Recording a minimum temperature higher than the previous day maximum temperature or a maximum temperature lower than the previous day minimum temperature.
- h. Observing at a time different than indicated on the form.

5.1.2 Missing and Questionable Temperature Values. NCDC compares maximum and minimum temperature observations with values from nearby stations taking observations at the same general time of day. These are intended to correct errors such as d through g in Section 5.1.1. Suspect data that exceed data quality assurance thresholds may be edited. Both original and edited data are preserved in the database and both are reflected in the CD publication. An OBS line is added in the Daily Temperatures tables of the CD publication. This line is entered immediately below the MAX or MIN line. The temperature entered on the OBS line is the value reported by the observer, while the reading on the MAX or MIN line is the estimated value. When *** appears on the OBS line, readings were missing on the observer's report, and the values on the MAX and/or MIN lines have been estimated.

5.1.3 Health of the Network Data Base. The NCDC produces monthly statistical reports that depict the "Health" of network stations. Reports are tailored for NWS and include data capture rates, number and types of flags set, metadata issues etc. Reports are posted on-line.

Go to: <http://www.ncdc.noaa.gov/oa/hofn/>

5.1.4 Precipitation Irregularities. NCDC performs both temporal and spatial checks on precipitation data. Most of these checks compare one station against another. Weather maps, radar, and satellite imagery are also used to confirm or deny questionable values. Comparisons are also made between the days with various weather elements (hail, thunder, ice pellets, etc.) and precipitation. NCDC runs extensive checks and comparisons of snowfall and snow on the ground to ensure continuity in the reports.

5.2 Data Consistency, Accuracy and Legibility. The observer must take daily observations consistently and at the same time of day. The observation must be recorded on the WS Form provided (or other form-see Section 6) in clearly legible handwriting. If an observation is missed, the observer should enter "M" into the appropriate columns of the meteorological elements that were not observed on a particular date, and indicate the missed observation in the remarks section for that date (see Appendix F)

Readings should not be missed. An observer who is ill or leaves home should have a neighbor or friend as a substitute observer. Observers should be encouraged to add information about severe weather and its effects in the Remarks column.

The time an HPD tape is changed (day, hour, and minute, and standard or daylight time) should be clearly noted at both the beginning and end of the tape. The observer who must restart the HPD tape during the month should write the time of restart on the tape.

6. Formats of Computer Produced Forms. Some cooperative observers submit forms they have produced on their computers in place of forms such as WS Form B-91. However, it is very important that the order of the columns on these forms be the same as on the forms they replace and provide appropriate station information.

7. Court Appearances by Cooperative Observers. When an observer is contacted by an attorney or court official with a subpoena for a case where weather conditions may be a factor in litigation, the observer should inform the attorney having the subpoena issued that:

- a. Cooperative observers cannot authenticate any NWS records, even carbons or photocopies they may have in their possession, for they do not have the authority to certify these records.
- b. Cooperative observers cannot testify on behalf of the NWS.
- c. The National Climatic Data Center in Asheville, North Carolina is the official custodian for weather records of the NWS. NCDC can certify/authenticate the records and can be contacted at:

National Climatic Data Center
151 Patton Avenue
Asheville, North Carolina 28801-5001

Request for Data: Weather/Climate 828-271-4800

If the attorney is seeking expert testimony refer him/her to the following commercial website for a list of expert meteorologists:

<http://www.ametsoc.org>

<http://www.globalweather.com>

If the attorney is satisfied, request the subpoena be withdrawn. If the attorney insists on the observer's testimony the observer must honor the subpoena. The observer's testimony should be limited to elements about which he/she has personal knowledge or information.

Note: Court officials with subpoenas are process servers. Process servers do not have the power to withdraw the subpoena. The attorney that issued the subpoena must be contacted.

APPENDIX F – FORMS

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1. Introduction. This appendix lists the forms used to record weather observations in the cooperative program. The appendix also describes the usage and purpose for each form.
2. WS Form B-82. The purpose of this handy pocket-sized pad of forms is to record observations while reading the instruments. Information recorded on WS Form B-82 is then transferred to the official permanent record, WS Form B-91 or the approved NOAA paperless systems. Each pad of WS Form B-82 is intended to last one month. WS Form B-82 contains complete instructions for recording observations. This form is not mailed and may be retained by the observer. The form can also be used to transfer data to other WS forms.
3. WS Form B-91. Record of River and Climatological Observations (WS Form B-91) is used for daily entries of the observational day (24 hours ending at the official time of observation) rather than calendar day (midnight to midnight). The information on one page of WS Form B-82 is transferred to one line of WS Form B-91. For example, information for March 23rd on WS Form B-82 is transferred to the line designated for the 23rd day of the month on the WS Form B-91. Each WS Form B-91 contains space for an entire month's observations. The NWSREP will instruct the cooperative observer on how many carbon copies are required, and to where the copies will be sent. The forms should be mailed as soon as possible, but no later than the fifth day of the following month. Instructions for filling out the WS Form B-91 are contained on the cover pages of the form. If data is missing, **M** will be entered in the appropriate column(s) for the day(s).
4. WS Form B-92. Record of Evaporation and Climatological Observations (WS Form B-92) is the official permanent record form used by cooperative stations measuring evaporation. In addition to temperature and precipitation data, the following elements may be recorded on this form: dry and wet bulb readings, wind movement, evaporation, and temperature of the evaporation water. It is frequently used by agricultural extension stations, and the data may be published by NCDC. Instructions for filling out the WS Form B-92 are contained on the cover pages of the form. If data is missing, **M** will be entered in the appropriate column(s) for the day(s).
5. WS Form B-83a. Supplementary Record of Climatological Observations (WS Form B-83a) reports temperature and precipitation data as well as dry and wet bulb temperatures at up to three elevations, soil temperatures and soil moisture at up to six depths, wind movement or speed at up to three heights, and wind direction. It is mailed as directed by the NWSREP. Normally, a copy will be sent to NCDC. If data is missing, **M** will be entered in the appropriate column(s) for the day(s).
6. WS Form B-83b. Record of Reference Climatological Station Observations (WS Form 83b) is used by the 20 stations in this network to record maximum and minimum temperatures, precipitation, weather conditions, and, in some cases, wind movement. If data is missing, **M** will be entered in the appropriate column(s) for the day(s).

7. WS Form F-11. The Weekly Weather Report (WS Form F-11) is a card used to record temperature and precipitation. Data from these and other sources are used mainly to compute weekly divisional temperature averages and precipitation totals, which serve as the basis for computing weekly departures of temperature and precipitation from normal, and drought and crop moisture indices. The cards are mailed to the WFO or other office responsible for computing averages for divisions within the WFO area of responsibility.

8. WS Form E-11. Reporting Instructions-Rainfall Station (WS Form E-11) is used to instruct the observer how and when to report precipitation.

9. WS Form E-21. Supplemental Precipitation Survey (WS Form E-21) is used to obtain data after a flooding event by the NWSREP. Data obtained from bucket surveys are used to correlate heavy rain fall amounts with flood and flash flood crests. This information is vital in developing models that relate heavy rainfall to peak water levels. These relationships are used to increase the accuracy of future flash flood forecasts. Bucket surveys are also needed to justify the building of dams, the widening of drainage channels, the control of upstream urbanization (which can greatly increase future flooding risks), and to decide legal questions.

Many cooperative observers routinely compare rainfall amounts with other unofficial observers. The official observer can be of great help to the bucket survey team by providing the locations and rainfall amounts recorded by others, or by informing the team how best to contact other observers for further information. They can often assist the team to identify the area(s) having received the most precipitation.

10. WS Form B30 and B-30a. Cooperative Agreement with Observer (WS Form B-30) is used for effecting or terminating an agreement with an unpaid observer or cooperator for services or facilities, and (WS Form B-30a) is used with paid observers. The forms will be prepared by the NWSREP finalizing the agreement with the observer or cooperator. If the operation of a cooperative station is shared by more than one individual or agency, it will be necessary to prepare a separate WS Forms B-30 to cover the services provided by each of the cooperators unless they are married.

11. WS Form F-54. Metropolitan Network Monthly Report is used to record temperature and precipitation on this card by observers in comparatively dense local networks established to serve local needs, usually in metropolitan areas. The cards are mailed monthly to the office using the data

12. WS Form B-43. Request for Establishment or Change in Status of Cooperative Station (WS Form B-43) is available for regional use to recommend and coordinate changes at cooperative stations. Instructions for the use of this form may vary from region to region. Therefore, each region should issue separate instructions which describe the regional policy for the scope and use of WS Form B-43.

13. WS Form B-44. Cooperative Station Report (WS Form B-44) is intended to provide a complete and permanent record of a station. See NWSM 10-1313 Appendix C of CSSA for complete instructions to fill out and complete the form. The internet based form contains a complete file on location; observation and equipment information, observers name, etc for each cooperative station. Information on these forms is especially important to researchers studying subjects such as climate change.

The NWSREP responsible for the cooperative station enters the data into the CSSA system for changes to the observing site. The data is entered into the system when:

- a. Establishing, relocating, reestablishing, inactivating or discontinuing a station.
- b. Documenting changes at a station or the observing program.
- c. Five years have passed since the last recorded update.

A preliminary version of WS Form B-44 is prepared by the NWSREP making the establishment or change at a station. The form is quality controlled and approved through a workflow process in the following order:

- a. MIC level.
- b. RCPM level.
- c. NCDC level.

When approved at NCDC, the WS Form B-44 is official. The NWSREP should contact NCDC if there are any questions regarding the completion or submission of a WS Form B-44. This will reduce the chance of the form being rejected by NCDC.

14. CD 404. Supply, Equipment and Service Order (CD-404) is an agreement for the government to pay a COOP observer for certain services rendered. When a new paid station is opened or when an existing station changes its pay status, a Form CD-404 is required. The form is prepared by an NWSREP. However, the NWSREP should coordinate with the RCPM when preparing the form. There is no provision for the observer to sign the CD-404.

The NWSREP enters the data using the CSSA payroll option. Access the CD-404 menu and refer to NWSM 10-1313 CSSA Manual, Appendix D.

Essentially, the CD-404 information is entered by the NWSREP responsible for the cooperative station. The information is quality controlled by the RCPM through a workflow process. The RCPM approves the regional CD-404 prior to submission to the Regional Administrative Service Center (ASC). The CD-404 is printed out from the CSSA reports menu and mailed to the ASC.

The ASC makes quarterly payments to the observers, as instructed on the CD-404. In October, the NWSREP compiles the end of the fiscal year data and rolls over the CD-404 for the next

fiscal year. The new CD-404 is signed and sent to the ASC.

When the cooperative agreement is with a company or municipality, separate agreements with each observer will not be obtained. The agreement will be executed by a responsible official of the company, who will be designated as observer and will stipulate the services that will be rendered.

15. Official Cooperative Observation Site Certificate. This certificate (Figure F-1) can be used as an official designation of a cooperative site. The certificate can be framed and displayed at the observer's residence or any place the observer takes the observation. The certificate can be downloaded from the cooperative program website:

www.nws.noaa.gov/om/coop

Click forms on the left side of the web page.

NOAA/National Weather Service Official Cooperative Observation Site	
Site Name:	_____
Coop Site ID:	_____
Supervising Office:	_____
Date Observation Begin:	_____
	Authorizing Signature: _____
	

Figure F-1, Official Cooperative Observation Site Certificate

16. Surge Protection Waiver. In order to reduce the loss of data and the risk of possible injury or fire, the NWS can install surge protection equipment on the Maximum/Minimum (MMTS) system. This will require an hour or so of extra work, and the possibility of digging additional trenches in the ground and drilling holes through an outside wall to help install the surge protection equipment. If the observer prefers not to have the surge protection devices installed, have the observer read and sign the waiver in Figure F-2.

WAIVER
I hereby decline to have National Weather Service (NWS) or other Federal Government personnel install any surge protection equipment on the NWS maximum-minimum temperature system (MMTS) on my property that will require the drilling of holes in my walls or the digging of additional trenches for laying of cable. By declining this, I understand that I am absolving the Federal Government of any responsibility for personal injury or property damage that could result from power surges, and will hold the Government harmless from any liability for damages that may result from such power surges.

Signature

Station Name and Address

Date

Figure F-2, Surge Protection Waiver