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Cooperative Program Operations

Observing Systems Branch
Office of Systems Operations

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this Handbook is new, some was taken from
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1. Purpose

The purpose of this handbook is to provide details, particularly those which may change frequently, on the broad policies contained in Weather Service Operations Manual B-17 (WSOM B-17), Cooperative Station Management. It is intended for the use of the National Weather Service (NWS) representative (NWSREP)--the person who establishes, maintains, visits, and closes cooperative stations. The NWSREP is usually a cooperative program manager (CPM), Hydrometeorological Technician (HMT), or the Data Acquisition Program Manager (DARN). However, the NWSREP may be any NWS employee who conducts official visits to cooperative stations. During the 1990's HMTs and DAPMs are expected to gradually replace the CPM as the NWS Modernization and Associated Restructuring takes place. The DARN will supervise those HMTs responsible for the cooperative program.

WSOM B-17 defines the mission and scope of the NWS Cooperative Program and provides policy for management, operation, and maintenance of the program. Instructions for the installation and maintenance of equipment are contained in NWS Observing Handbook #2, Cooperative Station Observations (WSOH2).

2. Types of Observing Networks

Observing sites that are included in the cooperative program are placed in one or more of the networks described below.

2.1 "a" Network

The "a" network is the basic climatic network of the NWS. Data are used to describe the climate of the United States. The requirement for and spatial density of stations in the "a" network are defined by a 1953 study which is currently referred to as the Planned Network. Included in the "a" network are the stations in the historical climatology network (HCN), which must have at least 80 years of records. Data from HCN stations are often used in the study of climate change. Most, but not all, stations in the "a" network observe 24-hour maximum and minimum temperatures and 24-hour precipitation totals. At a minimum, "a" network stations must observe 24-hour precipitation totals.

2.2 "b" Network

Cooperative stations are placed in the "b" network if their observations are used primarily to support NWS hydrologic programs, such as flood forecasting, hydrologic planning, water supply, etc. Stations nearly always report 24-hour precipitation, and many include river stage or lake level. A few report maximum and minimum temperatures and the water equivalent of all snow on the ground (old and new). Information on the water equivalent of snow is particularly

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valuable during seasons when rapid snow melt may lead to flood conditions. A few stations record and report evaporation, soil temperature, and storage precipitation (usually snow at mountain stations).

A part of the “b” network is known as the FC-1 Network. FC stands for flood control. It consists of cooperative stations equipped with recording precipitation gauges that were originally maintained and funded by the Corps of Engineers (COE) but now are maintained and funded by the NWS.

2.3 “ab” Network

Cooperative stations that support both the climatological and hydrological programs of the NWS are referred to as being in the “ab” network. They generally have the responsibilities of “a” and “b” network stations combined.

2.4 “c” Network

Cooperative stations are placed in the “c” network if they support meteorological (rather than climatological and hydrological) programs of the NWS. Generally, data from the “c” network stations are used to support the issuance of warnings and forecasts and public service programs based on local and regional requirements. Stations with long records are included in the “c” network when they are not included in other networks described in WSOM B-17. These stations should maintain the same time of observation (Section 3.1) and the same type of equipment if at all possible.

Section 5 of WSOM B-17 contains additional information.

3. Times of Observation, When and How to Report

3.1 Times of Observation

Observations at stations in the “a” network are generally taken at 5 or 6 p.m. local time, although some report at later hours, even as late as midnight, and a few in the morning. Observations at “b” network stations are usually taken at 7 a.m. Newly established “b” network stations should be encouraged to adopt this observation time. Unless requested otherwise by the NWSREP, it is important to discourage observers from changing their scheduled times of observation. Such changes can cause fictitious changes in monthly average maximum and minimum temperatures.

It is important that observers note in the remarks column any date on which they departed from the scheduled time of observation, e.g., “8:30 a.m. ob.”

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3.2 Methods of Reporting

Many of the “b” and “c” network stations provide real-time or semireal-time data to NWS offices by telephoning their observations to an NWS office or to a computerized data collection system. Other observers, particularly those in the “all network, mail their data to the NWS or National Climatic Data Center (NCDC) weekly or monthly. Some “b” network stations are entirely automatic and are telemetered either by telephone lines, satellite, VHF radio, or by other means. Nearly all “b” and some “c” network observations, manual or telemetered, are relayed to a river forecast center (RFC) and to other offices that use the data as input to hydrologic models to support hydrologic forecast and warning operations and/or water resource forecasting. Some regions have their own reporting systems whereby observers key data into devices that send tones directly to computers over telephone lines. For example, the Central and Eastern Regions' systems are called ROSA (Remote Observation System Automation).

3.3 Reporting Criteria

Some “b” network observers report data each day, while others report only when specific criteria are met or exceeded. For example, the observer may be instructed to report only when the river is at or above a certain stage or if a specific amount of precipitation has occurred. Observers may be asked to begin calling at 6-hour intervals or other specified times when significant hydrologic events occur. These more frequent calls generally *continue until* the river falls below a given stage or precipitation ends. Reporting instructions vary from region to region and office to office but are made consistent with data requirements.

4. Establishing, Changing, or Closing Cooperative Stations

General policies are described in WSOM B-17. WS Form B-43, Request for Establishment or Change in Status of Cooperative Station, is the vehicle to be 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 that will be supported. An exception to this policy is that a requirements statement is not needed for stations in the “all network, since these sites are automatically authorized if they help fulfill the 25-mile spacing criteria.

4.1 Establishment of FC-1 (Flood-Control) Stations

The number of stations in the FC-1 program is intended to be stable. Regions may move sites from one location to another to meet *changing* requirements provided these changes are coordinated with the COE. If the NWS has requirements for additional FC-1 data sites above

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their current allocation, the regional hydrologist should coordinate the requirements with the Office of Hydrology (OH), Weather Service Headquarters (WSH). If OH agrees to support the requirement, it will issue a letter approving the additional stations) and provide the region with the appropriate funding for equipment.

If the COE indicates a requirement for additional FC-1 data sites, they should contact the NWS regional hydrologist. Recommendations for new stations are coordinated by the regional hydrologist and the appropriate district Corps' office and submitted, by the COE office involved, to the Chief of Engineers. If the recommendation is favorably endorsed by the Chief of Engineers and resources are available, WSH will issue a letter approving the additional stations).

4.2 Closure

Stations in the FC and other networks may have to be discontinued due to the unavailability of observers, poor quality of observations, replacement by automated stations, or because the stations no longer serve the purpose for which they were intended. Responsibilities are described in WSOM B-17.

5. Procedures for Numbering and Naming Cooperative Stations

Cooperative station numbers are assigned by NCDC to identify the stations and to facilitate alphabetical listings. Station numbers consist of seven or eight digits: e.g., 18-1125-6 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 one or two digits identify the climatological division in which the station is located. See Table 2 of the Cooperative Station Service Accountability (CSSA) User's Manual 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, stations should be designated by the name of the nearest community within the state recognized in the Rand-McNally Atlas. This is to be considered the primary name.

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

- a. 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.

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- b. 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 Plowville 4 ENE. Secondary names are not required, however, if the station is within the city limits and no other station uses the primary name.
- c. 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 Plowville 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. Each of these should be considered as a single station with the same name if the instruments are at approximately the same site. See WSOM E-40 pertaining to observing the river stage in connection with other observations.

6. Relocations and Moves

6.1 Definition

A station is considered to be moved whenever the observing equipment is taken from one location and placed at another. There are two categories of moves, compatible and incompatible (Sections 6.1.1. and 6.1.2).

Compatibility is always determined by comparing the new to the original equipment location for the station as described on Rendition 1 of the station's WS Form B-44. With some exceptions, a move is considered compatible if the new equipment location is within 5 miles of the original equipment location and the difference in elevation is 100 feet or less. However, take great care to assure that moves made within these limits are not, for example, from a hilltop to a valley bottom or subject to other large magnitude influences such as large water bodies, pavements, etc.

6.1.1 Compatible Move

A move is considered compatible when the equipment at an observing location is taken from its present location, installed at another, and the data at the new location are considered climatologically compatible with the data from the original site, as defined in Rendition 1 of the

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WS Form B-44. Thus, data from the new location will be a continuation of record of data from the old. The NWSREP is responsible for making the final determination on compatibility.

There are two types of compatible moves:

- a. Equipment Move. A move is considered to be an equipment move when
 - (1) the equipment is moved 200 feet or less
 - (2) for all practical purposes the station remains at the same data site, and
 - (3) data compatibility is maintained. An example of this is when the equipment is moved 100 feet south of its present location in order to improve the exposure. If data compatibility is not maintained, then\ the move cannot be considered an equipment move.

- b. Relocation. A move is considered to be a relocation when
 - (1) the observing equipment is moved
 - (2) the data site changes, and
 - (3) data compatibility is maintained. An example of a relocation is when an observer quits and the equipment is moved next door to a neighbor's yard or to some other location and data compatibility is still maintained.

A WS Form B-44 will be prepared and submitted to document all equipment moves and relocations (see the CSSA User's Manual).

6.1.2 Incompatible Move

A move is considered incompatible when observing equipment is moved and the data from the new location are not climatologically compatible with data from the first rendition of the WS Form B-44 for the station. That is, you must check back to where the station was originally established. Incompatible moves require two actions. The old data site is closed and the new site is treated as an establishment or re-establishment. The new site is given a different station number from the old site, as well as a new primary and/or secondary name.

If the new site is at a location that is climatologically compatible with a previously closed site, the new site is considered to be a reestablishment of the closed site, and it is given the station number of the previously closed site, provided the primary station name is the same.

6.1.3 Changes in the Primary Name of a Station

If the primary name changes for any reason, it is necessary to change the station number. If the change is due to a compatible move or a change in the name of a town or city, the following procedures will be used.

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- a. A WS Form B-44 will be issued closing the station with the old name. The following statement will be placed in the Remarks section of the form: “Station closed due to change in primary name. Station Number YY-YYYY-YY will be a continuation of this station record.”
- b. A WS Form B-44 will be issued establishing a new station with the new station name and number. In the Remarks section enter this statement: “This station is a continuation of the record of Station XX-XXXX-XX which was closed due to a change in the primary name.”

6.1.4 Examples of Moves

The following examples illustrate the relationship between compatible and incompatible moves. Location 1. In 1940, a station is established 4 miles west of the town of Jones, given the primary name of Jones and secondary name of 4W (Jones 4W). Station number 10-4500-01 is assigned. In 1958 the observer quits, a new observer cannot be found, and the station is closed.

Location 2. In 1970 a station is established one-quarter mile north of the center of Jones. It is only 4 miles east of the old Jones 4W site and the difference in elevation is only 25 feet. However, it is determined that the two sites are not climatologically compatible because Jones 4W was on the north side of a hill, while the new site is on the south side of a hill. The new station is given a new number, 10-4495-01, and named Jones.

Location 3. In 1975 the observer at Jones moves to a new home located 1.4 miles east of the center of town, with the observing equipment moved with him. The station elevation is 60 feet lower than at the old site. The new equipment site is considered compatible with the old, so the move is considered a relocation. The station is given a new secondary name LIE) but the primary name (Jones) and the station number (10-4495-01) do not change. Assigning a secondary name LIE) is optional if Jones is a city and no other station in the city uses the name Jones.

Location 4. In 1978 the observer at Jones 1E quits. The equipment is moved to a location just one-half mile south of the center of town, and is 90 feet lower in elevation than Jones 1E (Location 3 above). Location 4 is within compatible limits of Location 3. However, the compatibility test must be applied to the original site of Jones (B-44 Rendition 1 at Location 2). The move is incompatible since Location 4 is 150 feet lower than Location 2. A WS Form B-44 is issued closing Jones 1E (10-4495-01). The primary name of the new Jones site is still Jones. The secondary name is changed to No. 2. The station number must be changed because of its incompatibility with Jones. The new station number assigned by NCDC is 10-4496-01, and the station name is Jones No. 2.

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Location 5. In 1981 the observer at Jones No. 2 quits and a replacement is found 8 miles west of town. This site is incompatible with Jones No. 2 because

- (1) the move exceeds the suggested five-mile limit, and
- (2) the site is on a different side of a hill.

Because of this incompatibility, Jones No. 2 must be closed. However, Location 5, named Jones 8W, is compatible with Location 1. A WS Form B-44 is issued to close Jones No. 2 and another to re-establish station 10-4500-01, stating in Remarks, "This station is a continuation of the record of station Jones 4W, which was closed in 1958."

6.2 Illustrations of Name and Number Changes

In conformity with the above criteria and examples, the actions to be taken with respect to station names and numbers are illustrated in Table 6.1.

6.3 Determining Latitudes, Longitudes, and Elevations

The latitude and longitude of a station will be determined by the NWSREP to the nearest minute from a large-scale map. (Positions may need to be recorded to the nearest second or ten-thousandths of a degree for stations whose real-time observations are used for radar ground truth. However, WS Form B-44 (see Section 11.6] and CSSA files (Section 8] would have to be revised to accept the extra characters.) The elevation of a cooperative station is the mean sea level elevation of the ground at the site of the equipment, to the nearest foot. In case the instruments are not at the same general elevation, the elevation of the ground at the site of the rain gauge, if any, will be used. In the case of a station having only a river gauge, the ground level of the wire weight of the bridge or the ground level of the gauge house may be used as the elevation of the station. In the case of a cooperative station that is collocated with an NWS basic station (see Section 10), the elevation is the ground elevation reported on NWS Form A-1. Otherwise, elevations should be determined by the NWSREP from U.S. Geological Survey sectional charts if no other markers are available. Accepted abbreviations will be used to save space on forms.

7. Procedures and Instructions for Obtaining Station Identifiers (SID)

While the identification number for moved stations will be assigned by NCDC, SIDs are assigned by the Office of Systems Operations (OSO). Issuances, changes, and deletions of SIDs are requested by submission of a Management Information Systems Communications Handbook #5 (MISCH5) Change Request Form. Cooperative 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., C3 for Connecticut.

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Station change	Station Name	Station Number
Observing program and/or instrumentation changed; no station move involved (e.g., max and min thermometers installed at precip. stations).	Name remains unchanged.	Number remains unchanged.
Community or post office name changed; no station move involved.	Name is changed to conform to new name of community.	Number is changed to conform to new name.
Station moved enough to place it in another primary community or post office. (In this case, the move may or may not be enough to break continuity of the record.)	Name is changed to conform to name of new community.	Number is changed to conform to new name.
Station is moved within or about the same community or post office but not enough to break continuity of the record.	Primary name is unchanged; secondary name is changed if needed to conform to new orientation to community (e.g., Podunk 1E to Podunk 2NE or Cornstalk Univ. to Cornstalk Water Works).	Number remains unchanged.
Station is within one-half mile of the city center and has a secondary name of No. 1. It is relocated to another site that is still within one-half mile of the city center. Both sites are compatible.	Neither the primary nor the secondary name is changed.	Number remains unchanged.
Station is within one-half mile of the city center and is moved to a noncompatible site still within one-half mile of the city.	Primary name is not changed. Secondary name is changed. Plowville No. 1 becomes Plowville No. 2.	Number is changed.
Station is within one-half mile of the city center and is re-located to a site that is 3 miles west of the city center. Both sites are compatible.	Primary name is not changed; secondary name is changed to 3W or a more appropriate local name such as University or Water Works.	Number is not changed.

Table 6.1. When to Change Station Names and/or Numbers

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An SID Request Form shall be completed for any cooperative station that is established, moved, renamed, or closed, and to correct errors in MISCH5 records. The main function of assigning SIDs is to establish a directory of the locations where observations are taken. All cooperative stations, including reimbursable sites, shall be listed in MISCH5. See WSOM A-52, NWS Shared Access Data Bases and NWS Location Identifier Handbook.

Completed request forms shall be submitted to the OSO through regional headquarters (RH). Instructions for completing the form are contained in MISCH5.

When cooperative stations are moved or relocated, the following procedure shall be used:

- a. If data from the new location are considered climatologically compatible with data from the old site, the SID will not change unless it is necessary to do so to identify a change in station name associated with the move.

Even if a new SID is not required with a compatible move, an SID Request Form may be required to change information such as latitude, longitude, elevation, 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 even if the station's city name does not change. In cases of an incompatible move, two SID Request Forms are required:
 - (1) to delete the old SID, and
 - (2) to establish a new one.
- c. All requests to add, delete, or change SIDs must be coordinated with the appropriate RFC by the Service Hydrologist before being forwarded to the RH.

8. Updating CSSA Files

CSSA files are described in Section 6 of WSOM B-17 and in the CSSA User's Manual. They are updated as follows:

- a. When visiting a cooperative station, the NWSREP reviews and verifies all information contained on the current rendition of WS Form B-44 for the station. If the changes will necessitate an update of the CSSA files, a new rendition of the WS Form B-44 is prepared and forwarded to the appropriate RH in draft form, on a diskette, or by other means. See the CSSA User's Manual for instructions on preparing WS Form B-44.
- b. The regional NWSREP uses this information to update the regional CSSA data base. This process includes error checks.

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- c. The regional NWSREP sends updates periodically by diskette or other means to WSH and NCDC to update their master nationwide files. Additional error checks and corrections may be made at WSH and NCDC, with listings of errors sent back to the regions if necessary.

9. Inactive Stations

A station is inactive if it is carried on the roles, no observations are taken, but observations are expected to resume within 6 months. If a station is inactive longer than 6 months, it should be closed. A station is made inactive by submitting WS Form B-44 indicating the Reason For Report as "06, inactivate."

9.1 NWS-Funded Stations

An inactive station can be made active by submitting WS Form B-44 indicating the Reason For Report as "07, reactivate." When an inactive station must be closed, WS Form B-43, Request for Establishment or Change in Status of Cooperative Station, must be filled out and approved, unless exempted by the RH. WS Form B-44 will be prepared after the closure has been approved. The instruments should be removed and retained in the NWSREP's stock for future use.

9.2 Reimbursable Stations

Because of the proprietary interest of the sponsoring agency, the location of a reimbursable station is controlled by that particular agency, and the NWS is obligated to continue its operation if at all possible. When such a station becomes inactive and repeated efforts fail to restore it to operation, the sponsoring agency should be informed as soon as practical so arrangements can be made for closure and adjustments made in funding.

The reopening of a reimbursable station may require additional coordination with the sponsoring agency.

10. Cooperative Station Services at Stations that Report Basic Observations

Observations taken at these stations, where such data are required for the takeoff and landing of aircraft, frequently are needed and used in the "a", "b", or "c" networks, and some instruments may be serviced by the NWSREP.

Occasionally there are cooperative station type services rendered at stations-that report basic observations that should be continued if the latter stations are consolidated, moved, or closed. Such services might be hourly or daily precipitation, maximum and minimum temperatures, evaporation observations, etc. Before action is taken to change the status of these stations, the

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services rendered should be reviewed to determine if observations should be continued to meet cooperative network requirements.

The following actions should be taken if the station reporting basic observations is scheduled to be closed.

- 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 “all network.
- b. “b” Service. Review the need for continued service with the office that has Hydrologic Service Area (HSA) responsibility, the RFC, and the regional hydrologist.
- c. “c” Service. Review the need for continued service with the appropriate Weather Service Office (WSO) and Weather Service Forecast Office (WSFO). If the need for service continues, a cooperative station may be necessary.

11. Administrative Forms

This section describes the lists and forms used in the cooperative program.

11.1 Cooperative Station Numbers Master List

This listing, prepared by NCDC, is a historical summary of all station names, numbers, locations, and changes through time. It is available on diskette.

11.2 WS Form B-23, Cooperative Station Inspection

The inspection form is intended to report the details of each station visit. This form, however, is obsolete in most regions, having been replaced by computer-prepared inspection records. NWSREPs using WS Form B-23 should contact their RH for instructions on preparing it. An inspection report must be prepared for each visit to a station by the person making the visit. If the station being visited is a river gauge-only station, WS Form E-20 will be prepared instead. The report should be prepared during the visit and not from memory at a later time. If a computerized form is used, copies may be prepared for each site in advance of the trip. The NWSREP may enter the required information in pencil or pen during the trip, then key these values into a computer data base after the trip.

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The original and one copy of the inspection report are always required. The original should be sent promptly to the RH and the copy retained by the NWSREP in whose area of responsibility the station is located. Additional copies should be prepared for other offices when necessary. The retention period for inspection forms is 2 years, after which they may be destroyed, unless there are compelling reasons for longer retention.

11.3 Form CD-404, Supply, Equipment, or Service Order

This form is the agreement with an observer at a cooperative station where payment is involved. When a new paid station is opened or when an existing station goes on pay status, the form is usually prepared by the procurement point office, which is usually the office of the NWSREP or, in some cases, the office of the service hydrologist. There is no provision for the observer to sign the CD-404. See Exhibit 11.1.

Essentially, all the information required may be obtained through a computer terminal from the CSSA data base. This terminal can also be used to generate a complete CD-404 automatically by calling up CSSA's Screen 5 and following the instructions. There are five options available:

OPTION	WHAT IT DOES
1	revises an existing CD-404 for observers having one contract.
2	revises for two-contract stations.
3	adds a contract; i.e., for a new station or for an observer converting from unpaid to paid status.
4	discontinues (terminates) a contract.
5	prints the contract prepared by options 1 through 4.

The original of the completed CD-404 is sent to the appropriate Regional Administrative Service Center (RASC). The RASCs make quarterly payments to the observers, as instructed on the CD-404. During July or August of each year, the RASCs send draft CD-404's to the procurement point offices, which edit them and return them to the RASCs, indicating any changes required. This is an opportunity to review and, if necessary, revise the amount of payment to go to observers during the coming fiscal year. Regional offices are given some latitude in the overall management of the observer payroll program.

11.4 WS Forms B-30 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. They will be prepared by the NWSREP making the agreement with the observer or cooperator.

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1. REQUISITION NO. - BUREAU USE ONLY		UNITED STATES DEPARTMENT OF COMMERCE SUPPLY, EQUIPMENT OR SERVICE ORDER					SF-281 - FOR BUREAU USE ONLY	
2. PAGE NUMBER	2. RECEIVING OFFICE NO.	3. QUOTATION, REF. OR CONTRACT NO.	4. ORDER DATE	5. SOURCE	6. ORDER NUMBER	7. SUB		
1 of 1	9323	3380160068	10/01/88	2	42-4DNW-9-W0003	MM		
8. TO (Seller) MRS. EFFIE SPICER P. O. BOX 278 BEATTY, NV 89003		9. SHIP TO (Consignee and Destination) NATIONAL WEATHER SERVICE FORECAST OFFICE 601 SOUTH ROCK BOULEVARD RENO, NV 89502						
10. TOSS **		11. EMPLOYER IDENTIFICATION NUMBER (EIN) SSN: 552-46-4727						
12. LINE ITEM	13. ACTION CODE	14. DESCRIPTION	15. BUDGET OBJECT	16. ACC. LINE	17. QUANTITY	18. UNIT ISSUE	19. UNIT PRICE	20. AMOUNT
01		SERVICE RECORDING RAINGAGE	2518	01	12	MO	7.60	91.20
		4 Quarterly Payments of \$ 22.80 each beginning 12/31/88						
		26-0718 BEATTY 8 N						
21. FOB POINT			22. DISCOUNT TERMS		23. PROMPT PAYMENT	X	Sub-Total	24. 91.20
25. TIME FOR DELIVERY			26. SHIP VIA		27. ESTIMATED FRIGHT	0	TOTAL	28. 91.20
29. ACC. TO BUREAU LINE CODE		31. ACCOUNTING CLASSIFICATION			32. DISTRIBUTION		33. AMOUNT	
01	14	9 WT9488 8M1J2000						
ISSUING OFFICE NAME AND ADDRESS NATIONAL WEATHER SERVICE FORECAST OFFICE 601 SOUTH ROCK BOULEVARD RENO, NV 89502					ORDERED BY (Name and Title) JAMES B. SOILEAU, CPM PHONE (Area Code and Number) 7027845719 CONTRACTING/ORDERING OFFICER SIGNATURE ROBERT N. THOMPSON, JR., MIC-AM			
FORM CD404 (see 1/85)								

Exhibit 11.1. Form CD-404, Supply, Equipment or Service Order

COOPERATIVE PROGRAM OPERATIONS

They may be written in ink or typed, as long as the contents are legible. The original and the observer's copies should be signed by both parties.

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.

If the operation of a cooperative station is shared by more than one individual or agency, it will be necessary to prepare separate WS Forms B-30 to cover the services being provided by each of the cooperators. There are also occasions where one company or individual provides space on a cooperative basis while observations may be taken by someone on a paid basis. In these cases, a cooperative agreement on WS Form B-30 will be executed by the company or individual providing the free services. A CD-404 and WS Form B-30a will be prepared for the paid observer. However, if the same individual provides both a cooperative and paid service, only a CD-404 and WS Form B-30a will be prepared.

WS Form B-30 is mostly self-explanatory, with pertinent instructions printed on the reverse side (see Exhibit 11.2).

11.5 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 (see Exhibit 11.3). Instructions for the use of this form may vary from region to region. Therefore, each region shall issue separate instructions which describe the regional policy for the scope and use of WS Form B-43.

11.6 WS Form B-44, Cooperative Station Report

WS Form B-44 is intended to provide a complete and permanent record of a station. See Section 4 of the CSSA User's Manual for a complete explanation on filling out and updating WS Form B-44. A report on Form B-44 shall be prepared for the establishment, inactivation, discontinuance, or any change at a station or its observing program. Information on these forms is especially important to researchers studying subjects such as climate change. WS Form B-44 is required in addition to WS Forms E-19 (Section 11.7) and E-23. See Exhibits 11.4 and 11.5.

A draft of WS Form B-44 will be prepared by the NWSREP making the establishment or change at a station. The scratch copy should be forwarded through the supervising office to the RH for editing, keying into the CSSA data base (unless another office does the keying), and distribution.

COOPERATIVE PROGRAM OPERATIONS

WS FORM B-30 U.S. DEPARTMENT OF COMMERCE
(12-89) NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION
PRES. BY WSOM B-17 NATIONAL WEATHER SERVICE

COOPERATIVE AGREEMENT WITH OBSERVER

Station _____ County _____ State _____

Effective date of agreement _____

I agree to take reasonable care and protection to the instruments furnished by the National Weather Service, and to furnish free of charge observations and/or services listed below and suitable space for installation and exposure of instruments, until this agreement is terminated by notice by either party to the other: During the term of this agreement I will permit National Weather Service officials and/or alternate observers free ingress and egress to the equipment for purposes of taking observations, inspections, or maintenance but assume no liability for injuries which might occur to such persons while on the premise.

(signature of cooperative observer)

Mr., Mrs., Ms., Miss _____
(type one given name, initial or initials, and surname of observer, or name of organization)

Equipment is located at _____
(street address, building name, room number, highway number, etc.)

Observations and/or services to be provided _____

Equipment provided _____

Remarks _____

Approved _____ Title _____ Date _____

Original to RCPM. Copies to Cooperative Program Manager and Observer.

(Follow instructions on other side)

WS FORM B-30 (12-89)

Exhibit 11.2. WS Form B-30, Cooperative Agreement with Observer

COOPERATIVE PROGRAM OPERATIONS

Some NWSREPs forward updates on floppy disks. It is imperative that instructions on the preparation of this form be followed closely. Unless otherwise instructed, the original will be retained in RH and enough copies made to provide one for WSH (W/OS0141), NCDC (2), the NWSREP, and the supervising offices.

11.7 WS Form E-11, Reporting Instructions - Rainfall Station

This form instructs the observer on how to report rainfall observations, including when to report, how to record it, and how to telephone a voice or automated report. See Exhibit 11.6.

11.8 WS Form E-19, Report on River-Gauge Station

This form is the description and documentation of a river stage monitoring station. The HSA official supervising the station is responsible for the preparation and distribution of the form. NWSREPs visiting the station will cooperate with the HSA service hydrologist or hydrology focal point in supplying details observed during visits to the station.

11.9 WS Form E-21, Supplemental Precipitation Survey

This form is used when a field survey is made after periods of unusually heavy precipitation to obtain all possible information as to total precipitation amounts and other pertinent data that would be helpful in the reconstruction of the storm pattern (see Exhibit 11.7). Further details are given in WSOM E-40.

12. Costs

This section covers costs associated with NWS and reimbursable cooperative stations.

12.1 Prorating Travel Costs

NWSREPs frequently will service climatological, hydrological, and reimbursable observing sites (Section 13) on the same trip or series of trips. These costs must be prorated in proportion to the amount of time and funds consumed for each network. Costs prorated to the appropriate project number and object class are

- (1) the NWSREP's time
- (2) per diem
- (3) equipment, supplies, and contractual services.

12.2 NWS-Funded Stations

Costs for the operation and maintenance of "all and "c" network cooperative stations should be charged to task code 8M1J10. Costs for the operation and maintenance of "b" network stations should be charged to task code 8M1J20. When a station is included in more than

COOPERATIVE PROGRAM OPERATIONS

U.9 DEPARTMENT OF COMMERCE
NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION
NATIONAL WEATHER SERVICE

WS FORM B-44
(Page 11)

COOPERATIVE STATION REPORT

Rendition: 7

Network: AB

IDENTIFICATION SECTION

Station Name: KAUFMAN 3 SE Station No: 41-4705-3 SID: KAUT2
State: TEXAS Station Type: 92 Region: 2
County: KAUFMAN Township: Range:
Latitude: 32 Dec 33 Min N Elev: 420 ft MSL Section:
Longitude: 96 Deg 16 Min W Zero Datum:
Time Zone: CENTRAL Hydrologic Unit No:12030107
Station Begin Date: January 1900 River Basin: BRAZOS I
Equipment Located At:
OBSERVER'S FARM RESIDENCE, OUTSIDE 3.1 MI. SE OF PO KAUFMAN, TX.

OBSERVER SECTION

Observer 1: DOS: 06/01/71 Gender: F
Frankie M. Fair
Route 1, Box 881 Home Phone : 214-932-2091
Kaufman, TX 75142 Office Phone: -

Observer 2: ROBERT FAIR (SON) 214-932-2322 DOS: 06/01/71 Sender: M

STATION MANAGEMENT SECTION

CFM: FTWT2- WSFO/AM: FTIWT2 Hydro Service Area: FTWT2
ElTech: Reim Network: Warning Off: FTWT2 RFC: FTW

EXPOSURE/TOPOGRAPHY/DIRECTIONS SECTION

Exposure

(AZIMUTH/RANSE/ELEV) Nomenclature:
MMTS 050/35, SHRUBS 270-290/30/06, HOUSE 330-030/60/09.
TREES 030-120/40-60/09.

Topography:

GENTLY ROLLING FARM LAND.

Driving Directions:

FROM COURTHOUSE GO S ON HWY 34 TO FM1836. 80 E & SE ON 1836 3.1 MI TO
BRICK HOUSE ON RIGHT. NAME ON MAILBOX.

MISCELLANEOUS SECTION

Remarks:

TOUCHTONE INSTALLED, MMTS INSTALLED 02/28/89.
SRG RELOCATED FOR BETTER EXPOSURE.

Reason For Report:

10 ADD EQUIP(SEE REMARKS),CHNGE REP INSTRUCTIONS,RELOCATE SRG 35- TO W

Effective Date: 02/28/89 Authorization: WSR 10-15-82

Date of Change: 03/09/89 B44 Signature: JERRY F. WOLFE

Distribution: NCDC-2,RCPB,OSO/i41X49WSFO/FTWT2 RFC/FTW CPM/FTWT2

Exhibit 11.4. WS Form B-44, Cooperative Station Report

COOPERATIVE PROGRAM OPERATIONS

NWS FORM B-44 (Page -2)

Station: 41-4705-3 KAUFMAN 3 SE SID: KAUT2 Rendition: 7

-----			PAYMENT SECTION		-----	
Org	CD-404 Nr.	Service	Rate	Frq	Period	Task
WP9259	4271NW9WO040	PRECIP(H)	10.00	Mo	12 MONTHS	8MIJ2000

----- OBSERVATION --REPORTING-PUBLICATION SECTION -----

Publication;
(10) Daily Max/Min Temperature & Precipitation Published in the CD

Observation Element	T i f n c - n	Service/Form	Recipient	Pay	Sponsor
PCN PRECIPITATION	0800	E15 FORM	FTWT2,NCDC		S&E
TMP TEMPERATURE	0800	E15 FORM	FTWT2,NCDC		S&E
PCN PRECIPITATION 800-333-1B83 .01"	0800	RDP DIGITAL	FTWT2,AFOS	\$	S&E(H)

OR MORE AND E-11 INSTRUCTIONS. TT ID# 128

----- EQUIPMENT- SECTION -----

Equipment	Telem	Owner	Sensor Exposure
MMTS : MAX/MIN ELECTRONIC TEMP SYSTEM	-----	-----	-----
SRG : 8 IN STANDARD RAINGAGE		NWS	
TOUCH : ENCODER PAD OR PHONE		NWS	

Exhibit 11.5. WS Form B-44, Cooperative Station Report
(reverse side)

COOPERATIVE PROGRAM OPERATIONS

WS FORM E-11
(10-89)
(PRES BY WSOM E-14)

U.S. DEPARTMENT OF COMMERCE
NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION
NATIONAL WEATHER SERVICE

STATION NAME _____ **STATE** _____ **DATE** _____

REPORTING INSTRUCTIONS - RAINFALL STATION

(Hydrologic Service Area Offices will cross out items not applicable)

WHEN TO TAKE YOUR OBSERVATION

1. Take your REGULAR precipitation observation at 7 a.m. each day unless instructed otherwise. (EMPTY NON-RECORDING RAIN GAGE ONLY AFTER THE 7 A.M. OBSERVATION).
2. Take SPECIAL observations at 1 p.m., 7 p.m., and 1 a.m., whenever required by the following criteria.

WHEN TO REPORT YOUR OBSERVATION (by VOICE TELEPHONE)

1. Telephone in your initial report at 7 a.m., 1 p.m., 7 p.m., or 1 a.m., whenever or more of precipitation has accumulated in the gage.
2. After the first report, CONTINUE REPORTING every 6 hours (at the times above) as long as any additional precipitation has occurred since your previous report.
3. If you made a final report, but it begins to rain again in less than 24 hours, start reporting again just as though you had not stopped.

RECORDING YOUR REPORT

As you take your observation, you may record your precipitation amount on WS Form B-82, "Official Weather Observer's Record." This form is intended to help reduce the chances of forgetting the precipitation amount between the time you take and the time you enter your observations, e.g., on W9 Forms B-91 or B-92. Do not mail Form B-82. You may request this form, from you NWS representative. NOTE: If you report to an AUTOMATED collection system, your NWS representative will supply the proper form for recording your data.

TELEPHONING IN YOUR VOICE REPORT

Telephone number to call: (Regular) _____ (Other) _____
Use the regular number if possible (your message may be recorded). otherwise, use the other number. If not toll-free, call COLLECT. In an emergency when lines are busy, call the operator and state that this is an EMERGENCY WEATHER REPORT. If both telephone lines are out of order, contact your police or a local "ham" radio operator.

TELEPHONING IN YOUR AUTOMATED REPORT

Telephone number to call: (Regular) _____ (Other) _____
Your NWS representative will provide you with separate reporting instructions.

When additional supplies are needed, notify _____

SPECIAL INSTRUCTIONS _____

WS FORM E-11 (10-89) SUPERSEDES WS FORM E-11 (10-88) WHICH SHOULD BE DISCARDED

COOPERATIVE PROGRAM OPERATIONS

OFFICE PROCESS NUMBER	WS FORM. E-21 U.S. DEPARTMENT OF COMMERCE NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION NATIONAL WEATHER SERVICE	SURVEY IDENTIFICATION					
DATE	SUPPLEMENTAL PRECIPITATION SURVEY			DATE			
BASIS FOR SURVEY (OFFICE USE)				EXCESS RAINFALL PERIOD			
GEOGRAPHICAL AREA COUNTY STATE			DRAINAGE- BASIN (river or creek)				
LATITUDE // 0 /	LONGITUDE 0 / //	SECTION	TOWNSHIP	RANGE	ELEVATION		
POST OFFICE			DISTANCE AND DIRECTION FROM _____				
OBSERVER'S NAME TELEPHONE-AREA CODE _____			MAIL ADDRESS				
TYPE OF GAGE (or Other Container)			Sketch container, if non-standard: indicate dimensions. Show method of computing amounts for other than straight-sided.				
MEASUREMENT METHOD							
TYPE OF GAGE 9 WINDY 9 PROTECTED FROM WIND 9 OBSTRUCTION NEARBY 9 OTHER							
GAGE OR CONTAINER EMPTY BEFORE STORM 9 YES 9 NO							
STANDARD TIME USED							
INSTRUCTIONS							
RAINFALL AMOUNTS: Enter the amount as recorded by the observer. If it is recorded as "7 inches", enter it as "7 inches" not as "7.00". Cross out "or snow" in column 7. NON-STANDARD or NON-GRADUA TED CONTAINERS: Enter depth of rainfall in container in column 7 and computed amount in column 8. SNOW SURVEYS: (Optional Use). Enter snow depth in column 7 and water equivalent in column 8. Use separate lines for each observation at the site. Enter in remarks texture of snow (honey comb, crusty layers, etc.) Percent bars ground, drifting snow, frost depth (if observed), etc. Cross out "Rain or" in column 7.							
PRECIPITATION MEASUREMENT - INCHES (tenths or hundredths)							
PRECIPITATION BEGAN		PRECIPITATION ENDED		OBSERVATION		DEPTH	AMOUNT
DATE 1	DATE 2	DATE 3	DATE 4	DATE 5	TIME 6	(RAIN OR SNOW) 7	(MEASURED OR COMPUTED)
REMARKS: (Include such information as (1) time of heaviest pcpn.; (2) possibility of gage having overflowed; (3) information on flooding; (4) unusual weather; lightning; high winds, etc.; (5) evaluation of observation: good, fair, poor; (6) snow survey data.)						9 Continued on reverse	
NAME OF SURVEYOR AND TITLE				MAIL TO:			
AGENCY AND ADDRESS							

Exhibit 11.7. WS Form E-21, Supplemental Precipitation Survey

COOPERATIVE PROGRAM OPERATIONS

one cooperative network, the costs of operation and maintenance should be allocated in proportion to the applicable task numbers. For example, if a station is in the 'lab' network, the cost of operation and maintenance would normally be divided evenly between 8M1J10 and 8M1J20.

12.3 FC-1 Network

When an FC-1 station (task code 8M1J20) is discontinued, the savings created should be used to establish a new FC-1 station that is mutually agreeable to the NWS and COE. This would constitute an offset and would not have to be approved beyond the NWS's regional and COE's district levels.

13. Reimbursable Tasks with Other Agencies

13.1 General

The general procedures for performing reimbursable work with other Federal, state, and local governments, and with private companies, are outlined in Chapter 03 of the National Oceanic and Atmospheric Administration (NOAA) Budget Handbook and WSOM A-35. The following is in harmony with these procedures but pertains specifically to cooperative stations.

13.2 Task Numbers

Reimbursable costs are charged to task numbers beginning with RM1J. Charges for services to the COE (networks FC-2 through FC-61) are assigned task numbers RM1J88, with a 2-digit phase code appended to correspond to the network; e.g., RM1J8802 for network 2. Other reimbursable networks (IRPN-1 through IRPN-10, BPA-1, and others) are assigned task numbers beginning with R1-- 11J3, RM1J4, or RM1J8. Task numbers and phase codes are listed in Section 14.

13.3 Preparing Reimbursable Cost Estimates for the Next Fiscal Year

In the spring of each year, the National CPM will prepare estimates of costs for establishing new reimbursable stations and servicing existing ones. Section 15 explains the computation of these costs. These estimates are then coordinated with and approved (with revisions, if necessary) by the other agencies. WSH estimates, however, are for an average station and are intended to be used only as general guidelines by the regions, as actual costs may vary among regions and stations.

Factors causing costs to vary include distances traveled to stations, differing overheads among regions, etc.

COOPERATIVE PROGRAM OPERATIONS

13.3.1 Equipment Replacement Costs

The reimbursable agencies should not be charged for the costs of replacing instruments (precipitation gauges, etc.), as these costs have already been billed to the agencies through depreciation of the instruments over their expected useful lives. Computations in Section 15 include depreciation.

Coordination with the reimbursable agencies should be completed promptly enough that all regional estimates can reach WSH (W/OS0141) by the end of August.

13.4 Reimbursable Reporting Services Provided by NWS-Funded Observing Sites

In some cases, a reimbursable reporting service is to be provided by an NWS-funded cooperative station. If it is agreed at the region that 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, that would be incurred by the reporting service. Observer fees and communication costs should be adequately provided for 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.

13.5 NOAA Form 32-25, Reimbursable Task Plan

WSH needs cost estimates for accomplishments each fiscal year for each reimbursable task. They are used for NOAA budget procedures. A NOAA Form 32-25 is required for each reimbursable task. They must be forwarded to WSH, W/MB2, after being signed by the Regional Director and the National CPM.

14. Description of Reimbursable Networks

This section describes the networks cited in Section 13.2.

14.1 COE Networks

These 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 Weather Bureau-funded networks. They are networks FC-2 through FC-58. Exhibit 14.1 lists the 42 networks which

COOPERATIVE PROGRAM OPERATIONS

were reporting in Fiscal Year (FY) 1992, and Exhibit 14.2 lists the divisions and districts in which these COE networks are located.

14.2 Billing

For billing purposes, task numbers for all COE networks begin with RM1J88. The two phase-code digits following the 88 correspond to the network number, such as RMIJS809 for network 09.

The regions charge by network. WSH then bills the COE a lump sum to cover the expenses of all networks. The COE headquarters office, however, which pays the NWS for these services, is reimbursed by each COE division and district rather than by each network. The National CPM office, which monitors reimbursable accounts in order to track expenses and help detect billing errors, is responsible for converting charges by network to charges by division and district. To facilitate this, a computer program run in the National CPM office makes this conversion. Exhibit 14.1 shows the districts in which networks are located.

14.3 Bureau of Reclamation (BR) and Other Reimbursable Networks

The task symbols for BR tasks are Interior Reclamation Precipitation Network (IRPN) and a number indicating the BR region in which the tasks are located. Network symbols and task numbers for BR and other networks are shown in the table below:

Symbol	Task No.	Network Name
IRPN-1	RM1J3W	Pacific Northwest Region
IRPN-2	RM1J3Y	Sacramento
IRPN-4	RM1J8E	Upper Colorado
IRPN-6	RM1J83	Region 6 (Billings, Montana, office)
IRPN-7	RM1J84	Region 7 (Denver, Colorado, office)
IRPN-8	RM1J8C	McGee Creek (Amarillo, Texas, office)
IRPN-9	RM1JA9	Choke Canyon (Amarillo, Texas, office)
IRPN-10	RM1J4M	Brantley Dam
BPA-1	RM1J87	Bonneville Power Administration (see Section 14.4)
SJRA	RM1J8B	San Jacinto River Authority

Reimbursable agreements covering BR 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 BR. Installations may include recording, storage, and standard 8-inch precipitation gauges as well as temperature, evaporation, solar radiation, and other equipment.

COOPERATIVE PROGRAM OPERATIONS

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		

Exhibit 14-1. Names of Networks

14.4 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 and for developing forecasting procedures for streamflow in the Pacific Northwest.

15. Procedures for Estimating Reimbursable Costs

This section describes how to apportion charges among NWS and reimbursable networks described in Section 13. Agencies reimbursing the NWS for maintaining their observing sites are billed for the following:

- Communications
- Equipment purchases
- Inspection and maintenance of equipment
- Observer salary
- Printing (NCDC)

COOPERATIVE PROGRAM OPERATIONS

Costs are computed for each observing site, then totaled for all sites within a network to obtain a total network cost. These are determined as follows.

15.1 Observer Salary

This is the actual amount paid to the observer, if any. It is determined from Form CD-404.

15.2 Communications

These are the charges for telephoning reports to an NWS office. Where wide area telephone service (WATS) lines are used, the reimbursable agency is billed for its prorated share of the total WATS line charges.

The WSH OH submits its own charges for purchasing and operating the computers that receive and process the observations.

15.3 Equipment

Each spring, the National CPM 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 latter costs include depreciation of the instruments, shelters, etc. They are average costs and are intended to be used only as general guidance. Actual costs may vary from site to site.

The National CPM prepares equipment cost estimates for the following types of observing sites: Belfort (also known as the 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 OSO Engineering Division.

Agencies should not be billed for the cost of replacing damaged or worn-out equipment because we are reimbursed for these costs in advance through depreciation charges over the expected life of the equipment being replaced. The depreciation charge is the cost of each instrument divided by its expected life (7 to 20 years). We do bill for new equipment, but only when a new observing site is established or when an observing program is augmented with a new type of equipment, such as a Belfort gauge.

COOPERATIVE PROGRAM OPERATIONS

Division	Districts in Division	District Headquarters	Division	Name of Networks
LMVD	LMK	Vicksburg	<u>Lower Miss. 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	Huntincjton	<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	Fort Worth	<u>Southwest</u>	21-23, 26-27 35, 40, 42, 44
	SWG	Galveston		24, 43
	SWL	Little Rock		16
	SWT	Tulsa		7, 9

Exhibit 14.2. Divisions and Districts in which COE Networks are Located

COOPERATIVE PROGRAM OPERATIONS

15.4 Inspection and Maintenance (I&M)

Estimates of these costs are also sent to the regions by the National CPM each spring. They are based on the following factors:

- a. hours worked, both on the station inspection trip and in the office (hours vary with the type of station and number of visits per year);
- b. hours worked multiplied by the hourly wage;
- c. overhead added for leave, benefits, Standard Level User Charge, and Department of Commerce and NOAA surcharges;
- d. per diem;
- e. vehicle cost; and
- f. administrative overhead.

Computations for FY 1993 showed the following typical I&M costs (equipment depreciation included):

Standard rain gauge	\$252	(1 visit per year)
Temperature and precip. station	\$345	(1 visit)
universal gauge	\$712	(2 visits)
Belfort (Fischer & Porter) gauge	\$481	(2 visits)
Evaporation station	\$594	(2 visits)

15.5 Printing

NCDC will determine publication costs annually, unless the change from the previous year is small. This cost is based on the total cost of publication less subscription income, divided by the number of stations for which records are published. These costs include the following for a station reporting temperature and precipitation: personnel, keying, computer, archiving, and filming.

NOAA overhead must be added in determining publication costs for agencies outside of NOAA.

For FY 1993, unit publication costs, including NOAA overhead, were approximately as follows:

Precipitation only	\$105
Temperature and precipitation	\$150
Evaporation station	\$190
Universal gauge	\$190
Belfort [Fischer & Porter] gauge	\$120

COOPERATIVE PROGRAM OPERATIONS

16. Procedures for Replacing and Upgrading Equipment

16.1 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 in kind through regular requisition procedures. The name of the station at which the equipment is to be replaced should be indicated on the requisition. This procedure will not be used as a means for obtaining used equipment for the establishment of informal or unofficial installations.
- b. New or Upgraded Equipment. New or upgraded equipment must be approved in advance by the appropriate regional office. 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 such types of equipment can be disseminated, published, and archived in place of NWS equipment if it has been determined through comparison testing that the observations are comparable. As with any other equipment change, the NWSREP must determine that the exposure of the new equipment is essentially the same as that of the equipment being replaced. The decision on the publication of these observations in Climatological Data (CD) or in Hourly Precipitation Data (HPD) lies with the NWSREP and NCDC.

16.2 Reimbursable Equipment

Cooperative station maintenance unit costs include miscellaneous supplies and clock repair but do not include upgrading. Accordingly, the upgrading of equipment should be included in the cooperative agreement as a separate item, if pertinent to the task.

16.3 Replacing Privately-Owned Equipment

Replacing privately-owned equipment at a station is the responsibility of the owner of the equipment. Should the owner be disinclined to replace the equipment, the regional office should review the services rendered in accordance with guidelines and either provide the equipment (continuing to use data obtained from the remaining instruments) or cease using the data and maintaining the station.

COOPERATIVE PROGRAM OPERATIONS

17. Policy on Publishing Cooperative Station Data

This section covers details on the policy and criteria for determining which cooperative stations will have their data published by NCDC. See WSOM B-17, Section 8.

17.1 Criteria For Publishing Cooperative Stations

All of the following criteria must be met:

- 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 indicating the type of data to be published 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 prior approval is granted by NCDC (see Section 18.4).
- d. The observing equipment is of a type approved by the NWS.
- e. The station is routinely visited and maintained by an NWSREP.

17.2 Publication of Soil Temperatures

NCDC has agreed to fund the processing and publication of 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. The exposure and instrumentation are considered adequate by the Regional NWSREP.
- b. The records are made available in time for regular publication.
- c. The records are furnished in final corrected form by the cooperator to be retained in NOAA files.
- d. The station's distance from other stations approximates that of the "all network, i.e., 25 miles; or it was established specifically to compare data between sites closer than 25 miles.

COOPERATIVE PROGRAM OPERATIONS

- e. The station is fully documented, including soil type, aspect, slope, ground cover, and instrumentation.
- f. The data are obtained at one or more of the World Meteorological Organization-approved depths (2, 4, 8, 20, or 40 inches) or at approximately similar depths. The 4-inch depth is most frequently observed.

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- and 40-inch depths, data will be published only as observed values at one fixed observation time a day.

Data will be published if obtained under either bare soil or cropped native grasses.

Data from soil temperature stations that are operated or funded by a NOAA component will be processed and published providing the foregoing conditions apply and funds to support the work can be transferred from the NOAA component that collects the data.

Soil temperature data from stations or depths that do not meet the above criteria for processing and publication will be accepted, but only for archiving and other applications.

17.3 Publication of Data from New Observing Programs

When new or expanded observing programs are planned which require additional funding to the regions, the funding for the processing and publication of the data should be coordinated with NCDC and included in the budget request for the new or expanded program.

17.4 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 publishing the data, with costs funded by the requesting agency.

17.5 NCDC Archiving of Non-Published observations

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

- (1) Reporting of automated stations, such as river gauges

COOPERATIVE PROGRAM OPERATIONS

- (2) “b” network stations that also observe temperature (only the precipitation is published),
- (3) Trial periods for new observers to determine the quality of observations
- (4) Recruitment of promising new observers who are expected to replace current observers in the near future.

18. Quality Control

one of the most important tasks of the NWSREP is assuring that observations are recorded and reported accurately and that data are received promptly by users. Otherwise, the value of the observing program degrades significantly or becomes useless. Forms and charts which are not received at NCDC by their cutoff dates will not be published. If 1 month's report is incomplete or missing, no monthly or annual precipitation total can be determined or published, nor can an average annual temperature be published.

18.1 Finding and Correcting Observing/Reporting Errors

Final responsibility for reviewing WS Forms B-91 and HPD tapes lies with NCDC. Nevertheless, many of the NWSREPs review these and other forms received from the observers each month, making mental or written notes of any problems with the data. Problems requiring urgent attention (significant errors in reporting procedures, late or missing data, etc.) should be discussed with the observer by telephone. Less urgent problems should be dealt with during the next scheduled (annual or semiannual) station inspection.

Observers should be telephoned in advance of visits to assure they are home at the time of the planned visit, provided the NWSREP is certain of arriving at the scheduled time. In case of a delay, the NWSREP should call the observer.

If the observer cannot be seen at the time of the routine station inspection, telephone calls may have to be substituted.

18.1.1 Common Observing Errors

Typical errors are listed below. Errors d through g are often detected, flagged, and adjusted by NCDC (see Section 18.2).

- 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.

COOPERATIVE PROGRAM OPERATIONS

- c. Reporting Maximum/Minimum Temperature System (MMTS) readings in degrees and tenths.
- d. Missing a day's observations, then entering subsequent readings on the wrong (usually the preceding) date.
- e. Guessing temperatures that were not recorded.
- f. Shifting (entering maximum and minimum temperatures and precipitation totals on WS Form B-91 on the date they occurred, rather than the date of the observation, when the extremes occurred on the previous calendar day).
- g. Recording today's maximum temperature as being lower than the temperature at the time of observation 24 hours earlier, and recording today's minimum as being higher than the temperature 24 hours earlier (an error most common with institutional observing sites, especially radio and TV stations).

18.2 NCDC Error Identification and Correction

NCDC runs computerized quality control checks on monthly temperature data to detect and correct some errors and, where possible, to estimate missing values. NCDC also prepares listings of stations from which no autographic charts or punch paper tapes have been received from Universal or Belfort rain gauges, respectively.

Information on missing or inaccurate data is made available to the field offices both from NCDC and from WSH (via the regional NWSREP offices) in order to help NWSREPs identify and correct problems.

18.2.1 Missing and Questionable Temperature Values

NCDC compares maximum and minimum temperature observations with values from nearby stations that take observations at the same general time of day. The data used in the comparisons comprise what are known as "arrays." These are intended to correct errors such as d, e, and f in Section 18.1.1. When discrepancies with neighboring stations exceed 7°F, 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, based on temperatures from adjacent observing sites taken at the same or similar times of day.

COOPERATIVE PROGRAM OPERATIONS

18.2.2 Temperature Inconsistencies

NCDC runs computer checks on observations for temperature inconsistencies (error g in Section 18.1.1). NCDC prepares monthly Temperature Inconsistency reports, available via modem, listing the number of inconsistencies from each observing site, NWSREP area, state, and region. The NCDC program also automatically adjusts the inconsistent maximum and minimum temperature values just enough to eliminate the inconsistencies. However, there is no sure method of determining if the adjusted values are correct.

18.2.3 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 assure continuity in the reports. Some of these checks include snowfall with minimum temperatures greater than 40°F, snowfall with no snow on the ground, and more than three inches of snow disappearing in one day. Since the advent of video screen display and other computer checking of temperature data, NCDC is now spending more time in the quality assurance of precipitation than temperature data.

18.3 Data Consistency, Accuracy and Legibility

The observer must take daily observations consistently and at the same time of day. They must be recorded on WS Form B-91 (or other form-see Section 18.4) in clearly legible handwriting. Illegible entries are no better than missing data and can cause data entry errors at NCDC. 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. See WSOH2 for additional information on HPD tapes and Belfort gauges.

18.4 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. These are accepted by NCDC because they are more legible than some handwritten entries. However, it is very important that the order of the columns on these forms be the same as on the forms they replace.

COOPERATIVE PROGRAM OPERATIONS

18.5 Observers' Procedures for Reporting Problems to the NWSREP

Observers should be urged to report promptly, usually by telephone, any problems making their instruments unusable or their data unreliable. Less urgent problems, such as the need for antifreeze or new forms, may be noted on WS Form B-91, or WS Form B-27, Substation Supply Request, can be mailed to the appropriate office. Problems should be stated on this form beneath the line reading: "This station is having the following difficulties:". The NWSREP should cross off any request noted on WS Form B-91. Otherwise, NCDC will make a list of these requests and send it back to the NWSREP.

18.6 Meeting Mailing Deadlines

Observers should be strongly encouraged to mail their observation forms and HPD tapes by the 5th of the month. If the HPD tapes have not been received by the 10th of the month, telephone calls should be initiated to the observer. About the 10th of the month or later, the NWSREP should call NCDC to get a listing of forms not yet received. Calls should also be placed to these observers to remind them to send their forms. Reports should be mailed to NCDC (by the NWSREP or observer) by the 15th of the month in order to accommodate NCDC processing schedules. Any WS Forms B-91 not received at NCDC before the end of the month will not be published.

18.7 Communicating Real-Time Data

Records of the number of daily and/or criteria reports transmitted can be reviewed prior to station inspections. A pep talk may be needed if some routine reports are not sent or if the probable number of criteria situations *significantly exceeds* the number of criteria reports sent.

19. Maintaining Good Observer Performance and Morale

Providing motivation to the observer is one of the most important functions of the NWSREP. The good NWSREP must be part psychiatrist and part salesperson. Motivation can be in the following forms:

- a. Pep talks, instructions on good observing practices, or just a plain thank you given during personal visits, usually on the NWSREP's annual or semiannual inspection trips.
- b. Telephone calls and letters of thanks, either for sustained good work or for outstanding efforts in individual situations (e.g., extra reports made during flood situations). The NWSREP, forecast office, or other NWSREP can initiate these actions.
- c. Awards and award ceremonies.

COOPERATIVE PROGRAM OPERATIONS

- d. Recognition in the National Cooperative Observer.
- e. Providing the observer's data to users in addition to the NWS, such as agricultural interests, private meteorologists, and the media.
- f. observers seeing their data published in the CD or HPD.

For some observers, the NWSREP is the only source of motivation and only direct contact with the Federal Government. Personal contact with the NWS office when calling in a rainfall or river stage report has been replaced in most places by Code-a-Phones and computerized (i.e., Touch-Tone and ROSA) communications.

Station *inspections often* provide the best opportunity to remind observers that their real-time reports are important in saving lives and reducing property damage, and that their weekly and monthly reports are vital to our knowledge and understanding of our climate, crop growth, and the relationship of precipitation to river stages and flooding. The spirit of volunteerism in providing us these valuable services is very important in a time when many people will first ask, "What's in it for me?"

Listening to observers' anecdotes, success stories, tales of woe, or even their life stories (if not too lengthy) can be important, showing them (if nothing else) that we are interested in them as people, not just as free or low-cost sources of information.

19.1 Handling the Problem Observer

A sure way to lose observers, or at least their cooperation, is to confront them directly with their deficiencies. Direct criticism (e.g., saying "some of your reports are useless"), even if true, is usually counterproductive.

Except in the rarest of circumstances, a pat on the back should precede or follow criticism. Sometimes we can veil criticism in the guise of encouragement. For example, if WS Forms B-91 are frequently mailed too late to be used, the NWSREP can first emphasize the importance and usefulness of these reports, then point out that their value is not realized when the reports are received after the mailing deadline.

If observers frequently miss observations, thank them for their excellent work in past years, then ask if there are extenuating circumstances causing the missing data (e.g., illness). If they feel they can't solve the problems themselves, encourage them to recruit neighbors to assist them. If this fails, you can still thank them for past efforts and ask if they think they should cease being observers. If so, perhaps they can suggest possible replacement observers.

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Many NWSREPs have some knowledge of the beliefs and idiosyncracies of most of their observers and can use this knowledge to their advantage as a guide to handling problems.

20. Awards

This section describes the types of awards given to cooperative observers. They may be given for length of service or in recognition of one or several especially significant achievements.

The recognition afforded by awards is a very important element in motivating observers. Listed below are the awards available to cooperative observers.

20.1 Length of Service Award

This is given to institutions, such as public utilities, and to individuals.

20.1.1 Institutional Award

This is given to an institution or industrial organization, where several different people have taken observations over a period of years. Institutional awards are given at the end of 25, 50, 75, and 100 years. Each RH obtains blank signed certificates from WSH. The NWSREP presents the award to the institution, often with a ceremony. Exhibit 20.1 shows the 75-year Institutional Award.

20.1.2 Individual Awards

These are granted to individual observers, usually by the NWSREP, after completing 10 years of service, and every 10 years thereafter. Some offices have a policy of sending letters or awards every 5 years. Exhibit 20.2 shows a 40-year Length of Service Award. In addition to the awards, the RH will often send letters to observers expressing thanks for their services. observers who have been active for 40 years receive a letter of appreciation from the Assistant Administrator for Weather Services, in addition to a Length of Service Award. The title used on the letter and certificate, however, is Director, National Weather Service.

20.1.3 Edward H. Stoll Award

This award, shown in Exhibit 20.3, and a letter of appreciation signed by the Director, National Weather Service, are granted to observers having completed 50 years or more of observations. Each autumn the RH submits names of the Stoll award *winner*s for the following year to the National CPM, who then prepares the certificates and mails them to the RH. The Stoll award was established in honor of a man who served as a cooperative observer without interruption for 76 years.

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20.1.4 Helmut E. Landsberg Award

This award (Exhibit 20.4) and a letter of appreciation signed by the President of the United States are sent to observers serving for 60 years. The Landsberg award was named in honor of the man largely responsible for establishing the nationwide climatological network as we know it today.

20.1.5 General Albert J. Myer Award

Observers having completed 65 years of service are eligible for this award. It is named after the observer at Eagle Pass, Texas, (later the chief of the Signal Service). In 1870, by a joint resolution of Congress signed by President U. S. Grant, he was appointed to establish and direct the “Division of Telegrams and Reports for the Benefit of Commerce,” now known as the National Weather Service.

20.1.6 Ruby Stufft Award

This award is granted to observers having completed 70 years of observations. In 1991 Mrs. Stufft of Elsmere 9 ENE, Nebraska, became the first woman observer to reach the 70-year milestone.

20.1.7 Earl Stewart Award

After having taken observations for 75 years, observers receive this award. Mr. Stewart completed 75 years of continuous observations at Cottage Grove, Oregon, in 1992.

The formats of the Albert J. Myer, Ruby Stufft, and Earl Stewart awards are identical to the format of the Edward H. Stoll award.

20.2 Awards for Special or Sustained Achievements

There are five methods of recognizing special accomplishments by cooperative observers: (a) letter of appreciation, (b) special service award (c) public service award, (d) the John Campanius Holm Award, and (e) the Thomas Jefferson Award. These are described below.

20.2.1 Letter of Appreciation

A letter of appreciation may be sent to an observer by an NWS official to express satisfaction with consistently good or above average services rendered.

COOPERATIVE PROGRAM OPERATIONS

United States Department of Commerce
National Oceanic and Atmospheric Administration

INSTITUTIONAL AWARD

This certificate is awarded to

*in grateful recognition of 75 years of Weather
Observations in cooperation with the
National Weather Service*



DATE ISSUED:

Supervisor

ASSISTANT ADMINISTRATOR FOR WEATHER SERVICES

Exhibit 20.1. Institutional Award

COOPERATIVE PROGRAM OPERATIONS



Recognizing
for Forty Years
of Service in the
Government of the
United States of America

Exhibit 20.2. 40-Year Length of Service Award

COOPERATIVE PROGRAM OPERATIONS

United States

Department of Commerce

National Oceanic and Atmospheric Administration

National Weather Service

Edward H. Stoll Award

Presented to

For serving 50 or more years as a cooperative weather observer

Issued

Regional Director

Director, National Weather Service



Exhibit 20-3. Edward H. Stoll Award

COOPERATIVE PROGRAM OPERATIONS

United States

Department of Commerce

National Oceanic and Atmospheric Administration
National Weather Service

Helmut E. Landsberg Award

Presented to

For serving 60 or more years as a cooperative weather observer

Issued

*Presented in honor of Dr. Helmut E. Landsberg (1906-1985),
father of the Climatological Observing Network*

Director, National Weather Service



Exhibit 20.4. Helmut E. Landsberg Award

COOPERATIVE PROGRAM OPERATIONS

20.2.2 Special Service Award

This is granted to express appreciation for special services rendered by an individual or organization. It may be prepared, approved, and signed by the local supervisor, including the NWSREP, hydrologist, community preparedness staff, or other official. It may be awarded for any significant service believed appropriate by an official of the supervising office, including:

- a. Timely and unusual action to insure receipt of weather reports at collection centers.
- b. Unusual assistance or ingenuity in maintaining equipment and observations in times of emergency.
- c. Consistent or unusual service rendered a local office where other awards do not apply.
- d. As an intermediate award when significant services are rendered to warrant recognition, but the requirements of other awards have not been met. For example, it may be used as a length-of-service award for intermediate years (e.g., 15, 25, etc.) if no other award is available for this purpose.

Presentations should be made as soon as possible after the special service was rendered. Each supervising office should keep a small supply of blank awards. Exhibit 20.5 shows a Special Service Award.

20.2.3 Public Service Award

The Public Service Award is one step above the Special Service Award. It is presented to institutions or individuals who have performed meritorious service but may not qualify for a higher award. This may be granted to individuals who have undergone considerable risk to their life or safety to report rainfall, river stages, or severe weather, for example, that have contributed to the issuance of lifesaving warnings by the NWS. In order to be granted, Public Service Awards must meet certain conditions established by and have the approval of the WSH Office of Meteorology, as described in WSOM J-80.

20.2.4 John Campanius Holm Award

This award, shown in Exhibit 20.6, is granted each year to a maximum of 25 observers to honor them for outstanding accomplishments in the field of cooperative observations. The award was named for a Lutheran minister who was the first person known to have taken systematic weather observations in the American Colonies in 1644 and 1645. NWSREPs select candidates for this award from among their observers who rank highest in several of the following categories:

COOPERATIVE PROGRAM OPERATIONS

- a. length of service (generally 20 years or more);
- b. accuracy and legibility of records;
- c. taking and reporting observations under occasionally hazardous or extreme weather conditions over an extended period;
- d. unusual efforts to maintain continuity of observations during illnesses, emergency absences, or equipment failure;
- e. consistent or unusual efforts to ensure that forms are sent in promptly;
- f. independent preparation or publication of climatological data or summaries, based on quality, consistency, and length of time issued;
- g. consistent and/or unusual efforts to disseminate weather information;
- h. consistent and/or unusually good care of instruments;
- i. a high level of cooperation with NWS officials and representatives; and
- j. activities in the community (civic or religious).

20.2.4.1 Selection Procedure

In the winter of each year, the NWSREPs are asked to evaluate one or more of their best cooperative observers not having previously received the Holm award by filling out WS Form B-24, Rating Sheet for John Campanius Holm and Thomas Jefferson Awards. NWSREPs often supplement WS Form B-24 with letters of recommendation, newspaper articles, etc., giving further evidence of candidates' qualifications for awards. The forms are then sent to the regional NWSREP, who may add evaluations and forward the forms to NCDC. NCDC evaluates observers for the legibility and accuracy of the forms and the consistency with which the reports are received on time. NCDC then forwards the forms to the National CPM's office.

The National CPM makes copies of the above information, summarizes the qualifications of all candidates, then sends everything to the members of the panel that selects the winners. Panel members usually include representatives of NWS Public Affairs, Office of Meteorology, and OH, in addition to the National CPM. Panel members then select their choices for the awards. A meeting is convened at which members cast their votes. Several votes may be required to break ties and to assure that winners are distributed fairly among the states and regions.

COOPERATIVE PROGRAM OPERATIONS

United States Department of Commerce
National Oceanic and Atmospheric Administration

SPECIAL SERVICE AWARD

Presented to

*in recognition with appreciation of
Significant Service rendered
for the National Weather Service*



Exhibit 20.5. Special Service Award

COOPERATIVE PROGRAM OPERATIONS

UNITED STATES
DEPARTMENT of COMMERCE
NATIONAL OCEANIC AND
ATMOSPHERIC ADMINISTRATION

JOHN CAMPANIUS HOLM
AWARD

CITATION:

For outstanding accomplishment
in the field of meteorological observations
in the tradition of John Campanius Holm,
earliest known systematic weather observer
in North America . . . 1644-1645.

Administrator, NOAA

Exhibit 20.6. John Campanius Holm Award

COOPERATIVE PROGRAM OPERATIONS

20.2.5 Thomas Jefferson Award

Exhibit 20.7 shows the Thomas Jefferson Award, the most prestigious award given to cooperative observers. It is named for our third president, who kept an almost unbroken series of weather records from

1776 to 1816. This award is given to no more than five observers a year, for outstanding and unusual achievements. All candidates for the Jefferson award must have received the Holm award at least 5 years earlier.

The selection of winners follows the same procedure as for the Holm award.

<p>UNITED STATES DEPARTMENT of COMMERCE National Oceanic and Atmospheric Administration</p> <p>THOMAS JEFFERSON AWARD</p>	
CITATION:	<p>For unusual and outstanding accomplishment in the field of meteorological observations in the tradition of Thomas Jefferson, pioneer weather observer and third President of the United States.</p>
	<p><i>Secretary of Commerce</i></p> <p><i>Administrator, NOAA</i></p>

Exhibit 20.7. Thomas Jefferson Award

COOPERATIVE PROGRAM OPERATIONS

21. 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 following information should be used as a guide to the observer and those involved in the court action.

- a. It is possible that most or all of the weather information required for the case may already be available, certified and in published form, at the nearest NWS office. Certified copies of records, as opposed to publications, which are also admissible as evidence in Federal courts pursuant to 28 USC 1733(b), are available from NCDC at the following address:

National Climatic Data Center
Attention: Climatic Information Branch
Federal Building
37 Battery Park Ave.
Asheville, North Carolina 28801

The telephone number is (704) 271-4682.

The above statute provides: "Properly authenticated copies or transcripts of any book, record, paper, or documents of any department or agency of the United States, shall be admitted in evidence equally with the original - thereof."

However, this does not mean they are admissible in state courts, although many state courts will accept certified records in evidence without authentication.

There is a nominal fee for the certified copies of records and publications.

- b. Requests for certified copies of records, where certified published data will not suffice, should be referred to NCDC since that office is the custodian of the original records. Carbons or photocopies should not be certified as copies of the original by observers, for they do not have the authority to certify these records.
- c. observers have no choice but to honor subpoenas. They are entitled to the same privileges as any other private citizens in collecting witness fees, reimbursement for travel, and other expenses from the Clerk of the Court. In some cases witness fees and travel reimbursement must be requested in advance.
- d. NWS cooperative observers who testify in court should state only the facts as to the weather elements that were observed and recorded. They should not be expected to give expert testimony as meteorologists or give opinions.

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- e. When a court appearance is contemplated or when a subpoena is received, the observer should contact the NWSREP and provide the following information:
 - (1) nature of the suit;
 - (2) court where the suit is being held;
 - (3) scheduled date of trial;
 - (4) names, addresses, and phone numbers of attorney(s) involved in the suit; and
 - (5) names, addresses, and phone numbers of the presiding judge and Clerk of Court, if available.

The NWSREP receiving the above information should notify the area manager who, in turn, should notify the NWS or NOAA staff attorney.

22. Compensation for observer On-the-Job Injuries

Cooperative observers are considered by the NWS as having employee coverage under the Federal Employees' Compensation Act (FECA) (5 U.S.C. 8101 et seq.) while engaged in observation work, regardless of whether they are paid. This provides compensation and medical care for disability due to personal injuries sustained while in the performance of duty. The term "injury" includes, in addition to injury by accident, a disease proximately caused by the employment. The law also provides for the payment of funeral and burial expenses and compensation for the dependents if the injury or disease causes the employee's death.

The FECA is the only remedy available for work-related injuries or deaths. Damages cannot be recovered from the NWS. The final determination as to an observer's eligibility and extent of coverage under the Act rests with the Office of Workers' Compensation Programs (OWCP), Employment Standards Administration, U.S. Department of Labor.

22.1 Procedure for Making Claims

Potential observer claims should be reported immediately to the NWS personnel officer for forwarding to OWCP. A claim may be in the form of a specific letter of particulars from the observer to the NWSREP or the supervising office, accompanied by Forms CA-1 and CA-4 signed by the observer and the NWSREP (or the NWSREP's supervisor; e.g., area manager), and Form CA-20 signed by the attending physician. These forms are available from regional personnel offices. Pertinent billings, receipts, or other supporting documents or statements should be attached and submitted to the Personnel Division, RH.

22.2 Assistance to Claimants

Questions about compensation under the FECA should be directed to the NWS regional personnel offices. Because observers may not be familiar with preparation of the forms, the NWSREP or regional

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Systems Operations Division should provide considerable assistance to the observer through the entire process. For the purpose of filling out the required forms, the NWSREP's supervisor is considered to be the observer's supervisor.

23. Waiver for Non-Installation of MMTS Surge-Protection EcruiPMENT

Some cooperative observers may object to having surge protectors installed on cables and cords attached to their MMTSs, and/or to the drilling of holes through walls or trenching required to make the installations. Since these devices are intended to protect the MMTS, the observers, and their property from damage, NWSREPs should protect themselves and the NWS legally (to the extent possible) by having observers sign a waiver if they don't wish to have the MMTS surge protection equipment installed. One copy should be retained by the NWSREP and another forwarded to the regional office. The waiver and explanatory letter are shown in Exhibits 23.1 and 23.2.

24. Forms Used by Cooperative Observers

This section lists the forms used to record weather observations and describes the action to be taken by the NWSREP. Information on how to use most of the forms is included on the cover of the pads of blank forms and is not generally repeated in the WSOM or the handbooks. WSOH2 displays several of these forms, including details on proper usage by the observer, whereas this handbook describes the handling of these forms by the NWSREP and NCDC. The following forms are most widely used in the cooperative program.

24.1 WS Form B-82, Official Weather Observer's Record

This was formerly WS Form F-7. It is for the convenience of the observers for jotting down their observations while taking them. These data are then transferred to WS Form B-91, after which Form B-82 may be discarded. One form is used each day.

24.2 WS Form B-83a, Supplementary Record of Climatological Observations

This was formerly WS Form F-10a. It is used to report the usual 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.

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Dear Cooperative Observer:

Over the years since 1983 when the MMTS came into use, power surges, often suspected to be caused by lightning, have been disabling enough MMTSs that a significant amount of valuable temperature data has been lost. In addition, there has also been a small possibility of property damage or personal injury from these surges, although no injuries have been reported in any of the 4,000 MMTSs installed so far.

In order to reduce the loss of data and the risk of possible injury: We are offering to install surge protection equipment on your MMTS. 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 you prefer not to have the above work done, please read and sign the attached waiver.

Sincerely yours,

Cooperative Program Manager

Exhibit 23.1. Cover Letter for Waiver

24.3 WS Form B-83b. Record of Reference Climatological Station Observations

This was formerly WS Form F-10b. It is used by the 20 stations in this network to record maximum and minimum temperatures, precipitation, weather conditions, and, in some cases, wind movement. Forms are sent to NCDC (see Section 5.1.1 of WSOM B-17).

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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

Exhibit 23.2. Waiver for Non-Installation of MMTS Surge Protection Equipment

24.4 WS Form B-91, Record of River and Climatological Observations

This was formerly WS Form E-15. It is used by observers in all types of cooperative networks. Precipitation (including snowfall and snow depth); maximum, minimum, and current temperatures; weather conditions; and river stages are recorded on this form. If the river and climatological station names differ, names and data from both stations may be recorded on the same form. The station index number, however (bottom right of form), must be that of the climatological station.

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24.4.1 Routing

If only river data are recorded, the forms are routed and processed in accordance with WSOM E-41, Collection and Processing of Hydrologic Data. If both river and climatological data are recorded, routing is as described above or as directed by the NWSREP. The NWSREP determines the routing if only climatological data are recorded.

Some climatological observers are instructed to send their forms directly to NCDC, some to the NWSREP (for quality control and processing before being forwarded to NCDC), and some to both. In all cases, NCDC must receive the original, as it is the most legible. WS Forms B-91 should be forwarded to NCDC as soon as possible, to assure their receipt there well before the end of the following month in order to be published.

24.4.2 Processing

NWSREPs are responsible for reviewing WS Forms B-91 containing climatological data from new observers and from those known to make errors before forwarding the forms to NCDC. NWSREPs can then train observers in correct procedures or, if possible, make the corrections themselves if the errors persist. Once the NWSREP is confident the observing procedures have been corrected (and assuming the NWSREP does not need the WS Forms B-91 for other purposes), the observer may be instructed to send future WS Forms B-91 directly to NCDC.

24.5 WS Form B-92, Record of Evaporation and Climatological Observations

This was formerly WS Form E-22. It 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.

24.5.1 Preparation

Instructions for filling out this form are given on the inside and outside of the cover of each pad of forms. This form should be prepared monthly whether or not evaporation observations are taken during the cold season.

24.5.2 Routing and Processing

The observer mails the original and one copy directly to NCDC at the end of each month. Stations equipped with water temperature recorders mail the charts along with WS Forms B-92 directly to NCDC. The forms are checked for accuracy and tabulated by NCDC. The carbon copies are then sent to the designated regional hydrologist.

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24.6 WS Form F-11, Weekly Weather Report

Temperature and precipitation are recorded on this card. 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 WSFO or other office responsible for computing averages for divisions within the WSFO area of responsibility. See WSOM F-11, Weekly Weather and Crop Summary Messages and Associated Reports.

24.7 WS Form F-54, Metropolitan Network Monthly Report

Temperature and precipitation are recorded 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. See WSOH2 for details.

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Acronyms

The following acronyms are used in this document:

BPA	Bonneville Power Administration
BR	Bureau of Reclamation
CD	Climatological Data
COE	Corps of Engineers
CPM	Cooperative Program Manager
CSSA	Cooperative Station Service Accountability
DAPM	Data Acquisition Program Manager
FC	Flood Control
FECA	Federal Employees' Compensation Act
FY	Fiscal Year
HCN	Historical Climatology Network
HMT	Hydrometeorological Technician
HPD	Hourly Precipitation Data
HSA	Hydrological Service Area
I&M	Inspection and Maintenance
IRPN	Interior Reclamation Precipitation Network
MISCH5	Management Information Systems Communications Handbook #5
MMTS	Maximum-Minimum Temperature System
NCDC	National Climatic Data Center
NOAA	National Oceanic and Atmospheric Administration
NWS	National Weather Service
NWSREP	NWS Representative
OH	Office of Hydrology
OSO	Office of Systems Operations
OWCP	Office of Workers' Compensation Programs
RASC	Regional Administrative Service Center
RFC	River Forecast Center
RH	Regional Headquarters
ROSA	Remote Observation System Automation
SID	Station Identifier
SRG	Standard Rain Gauge
WATS	Wide Area Telephone Service
WSH	Weather Service Headquarters
WSFO	Weather Service Forecast Office
WSO	Weather Service Office
WSOH2	NWS Observing Handbook #2, Cooperative Station Observations
WSOM	Weather Service Operations Manual

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