

## V - DATA COLLECTION AND COMMUNICATION NETWORKS

### 5-01 Hydrometeorological Stations

a. Facilities. A series of staff gauge boards are installed along the upstream face of the dam. The boards are graduated in 0.10 foot increments and are readable from the top of the dam. Plate 4-1 shows the locations of precipitation and stream gauges in and near the Carbon Canyon Dam watershed. These gauges, along with their latitudes, longitudes, and elevations, are listed in table 5-1.

b. Reporting. Hydrologic data are observed and reported in 3 different ways, as illustrated in table 5-2. Telemetry gauges report in real-time. Data from the gauges are either recorded locally onto charts or tapes (recording-type gauges) or are observed daily or more frequently (non-recording gauges). The types of gauges in the Carbon Canyon Dam vicinity are shown on table 5-1.

c. Maintenance. Generally, each operating agency is responsible for the maintenance of its own gauges and/or telemetry radio equipment. Some of the gauges located around Carbon Canyon Dam are cooperative. This means that the primary operating agency pays another agency to record and publish the data collected, maintain the gauge, and permit the primary agency access to this gauge information at all times. For these gauges the primary agency is either OCEMA or LAD, with the National Weather Service (NWS) or U.S. Geological Survey (USGS) being the secondary agency. Cooperative gauges are noted in table 5-1.

### 5-02 Water Quality Stations

No water quality stations exist in the watershed.

### 5-03 Sediment Stations

There are no sediment stations in the watershed. There are sediment ranges in Carbon Canyon Reservoir.

### 5-04 Recording Hydrologic Data

Each agency maintains records of its own data (section 5-1 above). NWS data are placed in archives at the National Climatic Center in Asheville, North Carolina. Precipitation and other data are published monthly by the National Climatic Center in Climatological Data and Hourly Precipitation Data.

OCEMA maintains their recording and non-recording data bases, and furnishes data to other agencies upon request. LAD maintains a data base from its recording and telemetry gauges and provides selected data to NWS for publication. Real Time Reports received from the Los Angeles Telemetry System gauges are stored in a database on the Water Control Data System Computer. LAD also enters data from its manual observations on various forms, which are maintained on file in the LAD RRS office. These forms are discussed further in section 9-4 and illustrated in figures 9-1 through 9-7.

#### 5-05 Communication Network

LAD maintains a voice radio communication network for its entire regulation activities. This routinely includes communications between the District Office and the various dam operators, as well as vehicles in the field.

During periods of significant runoff, communication with the dam operators becomes vital. The existing radio network, which has proven itself reliable, is backed up by a second radio network; both of these are backed up by the local telephone system.

Power at the District Office is backed up by an emergency generator system; if all fails at the District Office, there is a complete radio system at LAD Base Yard. The Base Yard is located a few miles east of the District Office.

#### 5-06 Communication with Project

a. Regulating Office with Project office. During the flood season (15 November through 15 April), a routine radio call is made at least once each weekday from LAD District Office to the dam operator at Carbon Canyon Dam. This "Morning Report" is usually made 0800 hours, Monday through Friday. Other routine or non-routine radio telephone calls are made as needed.

In the event that all communications with LAD office, including LAD Base Yard, should be interrupted, a set of "Standing Instructions to Dam Operator" has been compiled for Carbon Canyon Dam, and a copy of these instructions is included in this manual (exhibit A). LAD organization chart and important phone numbers for reservoir operations decisions at Carbon Canyon Dam are given in table 9-1.

b. Between Project Office and Others. No routine communication exists between Carbon Canyon Dam and other agencies.

c. Between Regulating Office and Others. Before and during the earliest stages of any reservoir impoundment, LAD notifies offices of other agencies and selected private interests of the impending rises in the reservoir water surface elevation and corresponding outflow. A list of the agencies to notify, with applicable office and home telephone numbers, is published annually in LAD's "Instructions for Reservoir Regulation Section Personnel" (The so-called "Orange Book"). During major runoff events, LAD RRS is in constant contact with OCEMA Operations Division and Orange County Water District (OCWD) Forebay Operations to fully coordinate the operations of each agency. LAD RRS is also in direct radio contact with channel observers when dispatched to patrol Carbon Creek and/or Carbon Canyon Channel during large floods.

#### 5-07 Project Reporting Instructions

During periods of water regulation, communications between LAD office and each affected dam operator are made on a frequent basis. Normal

communications occur once each hour, and more frequent communications are sometimes required. If a gate change is required, RRS staff provides the radio operator at the LAD office with the gate change instructions. These instructions are then broadcast to the dam operator. When the gate change is completed, the dam operator calls back to the District Office radio operator with information on the change. The radio operator then informs the RRS engineer who initiated the change. The dam operator records pertinent information associated with the gate change on the form shown on figure 9-5. This report form is subsequently submitted to the LAD office. Other special instructions to dam operators are conducted in a similar manner. This network of radio communications is also used by the dam operator to report any failure of machinery or other equipment, or any other unusual conditions at the dam.

#### 5-08 Warnings

The responsibility for issuing all weather watches and warnings, and all flood and flash flood watches and warnings, rests with NWS. Local emergency officials of cities and counties are responsible for issuing any other public safety warnings, including unusual overflows, evacuations, unsafe roads or bridges, and toxic spills. LAD is responsible for providing these officials with up-to-date information, and forecasts where possible, of water rises within Carbon Canyon Reservoir and release rates into the channel downstream of the dam. LAD RRS would notify the Fullerton and Placentia Police Departments to initiate evacuation if a dam break is imminent.

Table 5-1

Precipitation, Reservoir, and Stream Gauges In and Near  
Carbon Canyon Dam Watershed<sup>1</sup>

Designation	Name	Lati- tude	Longi- tude	Elev- ation	Description
RTU #19 USGS #11075720 *****	Carbon Creek below Carbon Canyon Dam	33-54-40	117-50-29	396	Flow recording
USGS 11075740 ***	Carbon Creek near Yorba Linda	33-53-18	117-50-42	289	Flow recording (1941-1961)
RTU #22 **	Carbon Canyon Dam	33-55-00	117-50-00	500	Precipitation non-recording Water Surface recording
OCEMA #185 NWS index 1518 *	Carbon Canyon Gilman	35-55-24	117-46-31	1500	Precipitation recording
OCEMA #20 ****	Carbon Canyon Summit	33-57-58	117-45-40	1100	Precipitation non-recording (1930-1961)
OCEMA #188 NWS index 1520 *	Carbon Canyon Workman	33-57-30	117-46-42	1080	Precipitation recording
OCEMA #26 ****	Yorba Linda	33-53-16	117-49-10	330	Precipitation non-recording (1912-1982)
USGS 11075730 ***	Carbon Creek at Olinda	33-54-12	117-50-42	350	Flow recording (1930-1938)

NOTE:       \* Cooperative gauge: OCEMA and NWS  
           \*\* LAD, Gauge and Designation (Remote Telemetry Unit)  
           \*\*\* USGS, Gauge and Designation  
           \*\*\*\* OCEMA, Gauge and Designation  
           \*\*\*\*\* Part of the USGS Cooperative Stream Gauge System  
                   (accessible by LAD telemetry)  
           1 See plate 4-1 for location

Table 5-2. Methods of Reporting Hydrologic Data

	Precipitation	Reservoir Water Surface Elevation	Streamflow Water Surface Elevation	Gate Heights
<u>Manual</u>	Glass Tube Precipitation Gauge	Staff Gauge	Staff Gauge	Gate Height Indicators
<u>Recording</u>	Precipitation Digital Recorder	Water Surface Recorder	Gauge Height Digital Recorder	Gate Height Recorder
<u>Telemetry</u>				
Interrogated	Gauge data is accessible via computer at all times.			
Fixed-Time Self-Reporting	Data is reported in at a specified time(s) of day.			
Event-Reporting	Reports every 0.04 inch of rain	Reports every 0.25 inch of elevation change		
<u>Gauge Type at Carbon Canyon Dam</u>	Tipping Bucket <sup>1</sup>	Pressure Sensing System <sup>1</sup>		Gate Height Recorder <sup>2</sup>

1 Attached to Telemetry System  
 2 Not attached to Telemetry System