

VI - HYDROLOGIC FORECASTS

6-01. General

The agencies responsible for hydrologic forecasts and their tasks are described herein.

a. Role of the Corps of Engineers. The LAD does not make any formal hydrologic forecasts for Alamo Dam. Water quality conditions in Alamo Lake or in the Bill Williams River are not predicted by the Corps. Despite lack of formal hydrologic forecasts, the LAD monitors reservoir water surface elevation, outflow, inflow and reservoir evaporation on a daily basis. The Corps notifies other agencies, along with private concerns, of any significant changes in reservoir elevation, outflow, and inflow. The Corps provides the Bureau of Reclamation office in Boulder City, Nevada with the daily reservoir elevation, storage, inflow, and outflow values.

b. Role of Other Agencies. The National Weather Service (NWS) has responsibility for preparing hydrometeorological data and forecasts for the Bill Williams River drainage basin, which include inflow forecasts to Alamo Lake. These data and forecasts are, in turn, obtained by Reservoir Regulation Section personnel, who analyze the various hydrometeorological data and forecasts received at the District office and keep themselves apprised of any precipitation or other unusual weather that could affect the drainage above and below Alamo Dam.

The data and forecasts obtained consist of both alphanumeric text and visual displays, the latter comprised of weather charts and satellite images. The alphanumeric text, consisting of data summaries, discussions and forecasts, is available from the NWS Weather Forecast Office in Phoenix, Arizona and is also on the RFC internet home (Web) page. This data is stored on the District's Water Control Computer and can be selectively printed out. The weather charts, consisting of analyses and computer-prepared forecasts, are obtained via communications satellite and are printed on a line

printer or a laser printer. The satellite images, also obtained via communications satellite, are displayed on a computer monitor and are selectively printed on a facsimile recorder.

6-02. Flood Condition Forecasts

NWS inflow forecasts are made on a daily basis. By routinely evaluating inflow, observed precipitation, and forecast precipitation, the NWS also provides inflow forecasts in flood situations. Plate 6-01 illustrates the methodology NWS uses in river forecasts and flood predictions. Using such information, the Reservoir Operation Center can evaluate if flood flows will increase or decrease over the next 24 hours. Plate 5-01 shows the location of precipitation and stream gages in and near the Bill Williams River basin and the key control points downstream of Alamo Dam.

6-03. Conservation Purpose Forecasts

Since there is no subscribed user for water stored in the water conservation pool, no conservation purpose forecasts are made.

6-04. Long Range Forecasts

The NWS has implemented an extended range forecasting procedure for the Bill Williams drainage basin to provide an estimate of inflows into Alamo Lake. The procedure uses the NWS Extended Streamflow Prediction (ESP) program. The ESP program uses conceptual hydrologic/hydraulic models to predict future streamflows using the current river, soil moisture, and snowpack conditions, along with historic hydrological and meteorological data. The ESP program is useful in predicting water supply and drought conditions, as well as predicting flood flows. Plate 6-02 illustrates the methodology the NWS uses in ESP.

The forecasting procedure for the Bill Williams River basin was calibrated in 2000 using the National Weather Service River Forecast System (NWSRFS), a

streamflow model which incorporates the Sacramento Soil Moisture Accounting (SSMA) methods. The basin was divided into three areas: the Santa Maria River near Bagdad; the Big Sandy near Wikieup; local area above Alamo Dam and below the previous two areas. These three areas are combined to generate the inflow forecast to Alamo Lake. The Reservoir Operations Center, in turn, uses the inflow forecasts to predict lake elevations and/or schedule releases, as appropriate.

6-05. Drought Forecasts

Drought forecasts are made using the ESP program as described in Section 6-04.