INTRODUCTION

Diego Garcia is a low-lying coral atoll located in the central Indian Ocean at latitude 7°S, and longitude 73°E (Fig. 1). It is the largest of more than 50 islands that make up the Chagos Archipelago in the British Indian Ocean Territory. The total land area is about 12 sq mi and forms an almost continuous land rim around the lagoon. Diego Garcia serves the defense needs of the United Kingdom and the United States, and is the site of a U.S. Navy Support Facility that provides services and materials to military forces in the region. In 1996, the 3000 people living on the island were either in the military or in civilian positions that supported military operations.

Diego Garcia’s drinking water supply is derived from ground water, which is recharged by rainfall. Ground water is pumped from wells in five ground-water production areas. Long-term ground-water monitoring was facilitated by a cooperative agreement between the U.S. Navy and the U.S. Geological Survey (USGS) during the period 1984–98. Evaluations of rainfall, ground-water pumpage, and ground-water chloride concentration helped to manage the resource. Summaries of ground-water data were published quarterly in the USGS Open File Report series. Status of ground-water resources at U.S. Navy Support Facility, Diego Garcia. Summary of hydrologic and climate data (for example, Torkul, 1995).

The purpose of this report is to provide an overview of ground-water resources at Diego Garcia using available data for the period 1985–96. Descriptions of the ground-water resource and discussion of the effects of rainfall and pumpage on ground water are included.

The average monthly rainfall for the calendar year was 386 mm. For 5 years during this period, annual rainfall was estimated using these averages. A long-term trend line of an 11-year moving average shows cycles of high rainfall and low rainfall represented by peaks and troughs in the annual total. The rainfall pattern was considered to have a cycle of 5 years. The annual rainfall was estimated using these averages.

The amount of ground-water recharge depends on rainfall, which varies considerably from month to month and year to year.

The water-production system

Diego Garcia’s water-production system produces sufficient water for more than 30 shallow wells for the period 1985–96. Vertical and horizontal pumping wells were distributed in five ground-water production areas. Water from the Coral Sea and the Indian Ocean was supplied to the water treatment system for a period of 5 years.

The monthly average chloride concentrations of water samples from the elevated distribution tank at Cantonment was less than 100 mg/L, during the period 1984–96, while water sampled from the elevated tank at Diego Garcia was less than 40 mg/L, during the period 1988–96. The elevated tank was comprised of water from the many individual wells in each area. The chloride concentration of water from Cantonment was greater than 100 mg/L, while water sampled from the elevated tank at Diego Garcia was less than 40 mg/L, during the period 1984–96. The elevated tank was comprised of water from the many individual wells in each area. The chloride concentration of water from Diego Garcia was less than 40 mg/L, during the period 1984–96. The elevated tank was comprised of water from the many individual wells in each area. The chloride concentration of water from Diego Garcia was less than 40 mg/L, during the period 1984–96. The elevated tank was comprised of water from the many individual wells in each area.