

INTRODUCTION

General

The objective of the study was to determine the maximum annual yield of fresh water that can be produced from the Enid Isolated Terrace deposits of the Cimarron River in Garfield County, Oklahoma. Under 82 Oklahoma Statute Paragraphs 1020.4 and 1020.5, enacted by the Oklahoma Legislature, the Oklahoma Water Resources Board is responsible for completing hydrologic surveys of each fresh ground-water basin or subbasin within the state of Oklahoma and for determining a maximum annual safe yield which will provide a 20-year minimum life for each basin or subbasin.

The maximum annual yield of each fresh ground-water basin or subbasin is based upon a minimum basin or subbasin life for 20 years from the effective date of the ground-water law (July 1, 1973). An annual allocation, in terms of acre-feet, is determined based on the maximum annual yield and is restricted to the aquifer area.

Location

The study area is located in the western half of Garfield County, in North Central Oklahoma. The location of the Enid Isolated Terrace Aquifer is shown in Figure 1. The aquifer extends over 52,000 acres in Garfield County and has an areal extent of 81 square miles.

Boundaries of the Enid Isolated Terrace Aquifer are controlled geologically. In the eastern half of the area, the boundary is defined by the Hennessey group - Quaternary terrace contact. The Cedar Hills Sandstone Formation - Quaternary terrace contact delineates the boundary