

# CONTENTS

Abstract.....	1
Introduction .....	2
Purpose and Scope.....	2
Description of Study Area .....	2
Previous Investigations .....	5
Geohydrologic Framework .....	7
Bedrock Geology .....	8
Stratigraphy and Geologic Structure .....	9
Ground-Water Hydrology .....	23
Domestic and Public Water-Supply Well Inventory .....	24
Ground-Water Occurrence and Flow .....	25
Ground-Water Discharge to Streams and Springs .....	32
Water Use for Public and Domestic Supply .....	33
Summary.....	38
References .....	40

## FIGURES

1.	Map showing location of the study area, streams, selected towns, major highways, county boundaries, and the Fort Leonard Wood Military Reservation boundary.....	3
2.	Map showing streams, springs, public water-supply wells, and surface-water intake in and near the Fort Leonard Wood Military Reservation .....	4
3.	Hydrostratigraphic column of geologic units for the study area.....	7
4.–13.	Maps showing:	
4.	Bedrock geology of the study area showing location of generalized geologic sections .....	10
5.	Altitude of the top of the Derby-Doe Run Dolomite in the study area .....	13
6.	Thickness of the Potosi Dolomite in the study area .....	14
7.	Altitude of the top of the Potosi Dolomite in the study area .....	15
8.	Thickness of the Eminence Dolomite in the study area .....	16
9.	Altitude of the top of the Eminence Dolomite in the study area .....	17
10.	Thickness of the Gasconade Dolomite in the study area.....	18
11.	Altitude of the top of the Gasconade Dolomite in the study area .....	19
12.	Thickness of the Roubidoux Formation in the study area.....	20
13.	Altitude of the top of the Roubidoux Formation in the study area.....	21
14.	Generalized geologic section trending west-east across the northern part of the study area.....	22
15.	Generalized geologic section trending west-east across the southern part of the study area .....	23
16.	Generalized geologic section trending south-north across the central part of the study area.....	24
17.–24.	Maps showing:	
17.	Pre-development water-table surface of the Ozark aquifer and recharge areas of selected springs in the study area.....	26
18.	Area where the water table occurs within the indicated formation and where the formation is partially saturated in the study area, spring 1998 .....	28
19.	Saturated thickness of the Jefferson City and Cotter Dolomites in the study area, spring 1998.....	29
20.	Saturated thickness of the Roubidoux Formation in the study area, spring 1998 .....	30
21.	Saturated thickness of the Gasconade Dolomite in the study area, spring 1998 .....	31
22.	Location of low-flow measurement sites and value of composite stream discharge.....	34
23.	Location of selected springs in the study area and composite spring discharge values .....	35
24.	Location of public water-supply wells in the study area and in a 6-mile wide band surrounding the study area and the Fort Leonard Wood Military Reservation surface-water intake on the Big Piney River.....	36
25.	Graph showing annual pumpage for 80 public water-supply wells in the study area and 63 public water-supply wells in a 6-mile wide band surrounding the study area from 1993 through 1997.....	37

## TABLES

1. Location, well construction, depth to water, and specific conductance data for inventoried wells in the study area and in a 6-mile wide band surrounding the study area, spring 1998 .....	45
2. Stream and spring low-flow discharge measurements made in September 1995, September 1998, and August 1999, estimated spring low-flow discharge measurements from published data, and composite stream and spring discharge data scaled to August 1999 discharge data .....	54
3. Average daily pumping rate and annual pumpage of public water-supply wells in the study area and in a 6-mile wide band surrounding the study area from January 1993 to June 1998.....	60
4. Annual pumpage of water from the Big Piney River for public water use at the Fort Leonard Wood Military Reservation, 1993–1997 .....	38

## VERTICAL DATUM

Vertical coordinate information is referenced to the National Geodetic Vertical Datum of 1929 (NGVD 29). **Altitude**, as used in this report, refers to distance above or below NGVD 29. NGVD 29 can be converted to the North American Vertical Datum of 1988 (NAVD 88) by using the National Geodetic Survey conversion utility available at URL <http://www.ngs.noaa.gov/TOOLS/Vertcon/vertcon.html>.