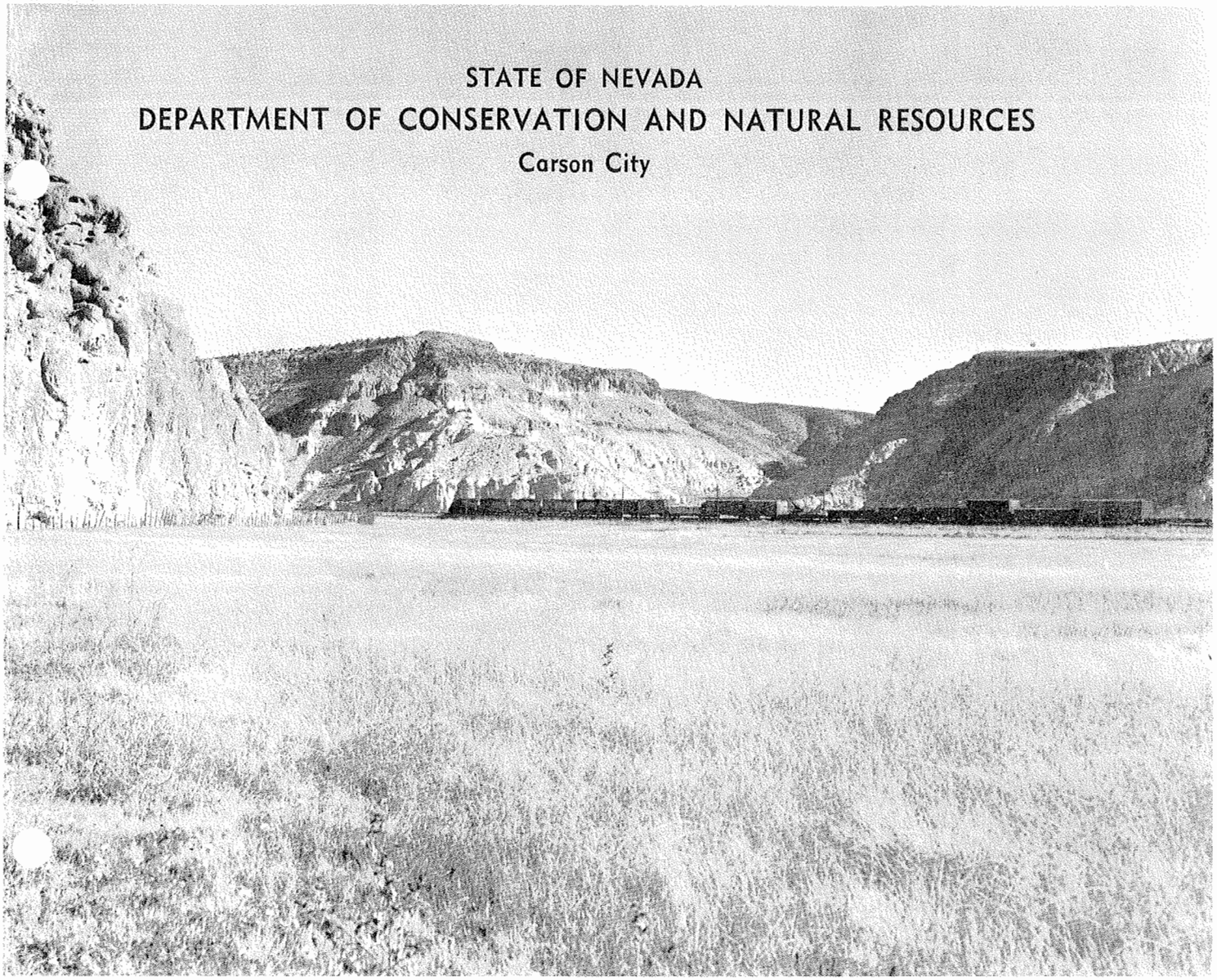
STATE OF NEVADA
DEPARTMENT OF CONSERVATION AND NATURAL RESOURCES
Carson City



View of an irrigated field in lower Meadow Valley.

GROUND-WATER RESOURCES – RECONNAISSANCE SERIES

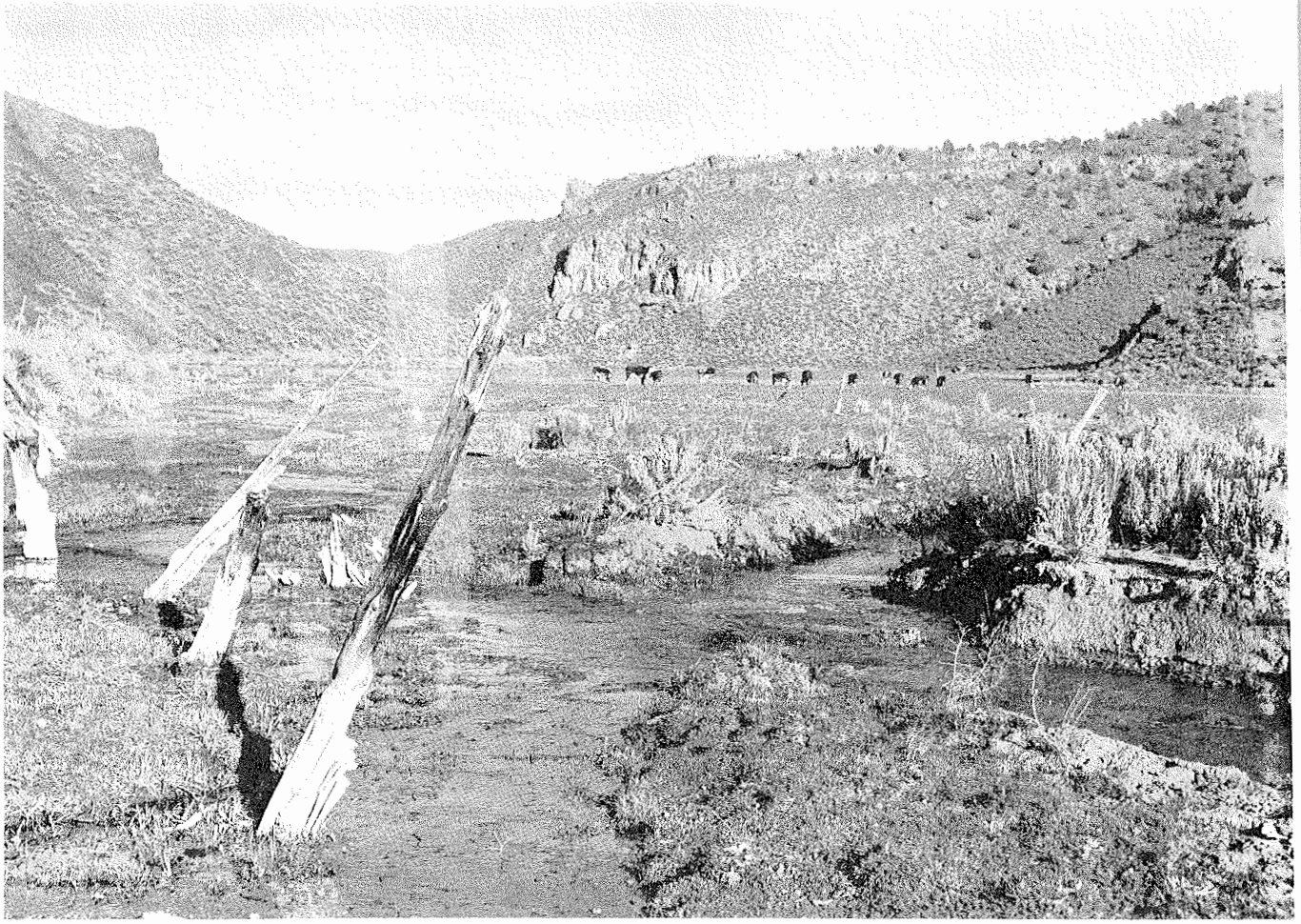
REPORT 27

GROUND-WATER APPRAISAL OF THE MEADOW VALLEY AREA, LINCOLN AND CLARK COUNTIES, NEVADA

By
F. EUGENE RUSH
Geologist

Prepared cooperatively by the
Geological Survey, U.S. Department of the Interior

JULY 1964



View of southern part of Spring Valley showing the flow of water from springs about two miles north. The water rises from the alluvium of the valley and supports the meadows and pasture in Spring Valley. The flow that leaves the valley is used in Eagle and Rose Valleys to irrigate crops.

COVER PHOTOGRAPH

View of a field in lower Meadow Valley, about two miles south of Caliente, that is used for hay and pasture. The fields of the area are irrigated by diverting the flow in the wash (beyond railroad tracks) and by pumping irrigation wells. The main line of the Union Pacific Railroad passes through lower Meadow Valley.

GROUND-WATER RESOURCES---RECONNAISSANCE SERIES

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May 1964

FOREWORD

This report, the 27th in the series of reconnaissance ground-water studies which were initiated following authorization by the 1960 Legislature, gives the results of a study of the Meadow Valley area. This area includes eight valleys in southeastern Nevada -- Patterson, Spring, Eagle, Dry, Rose, Panaca, Clover, and Lower Meadow Valley -- all part of the Colorado River drainage system.

This study was made and report prepared by F. Eugene Rush, Geologist for the U. S. Geological Survey.

These reconnaissance ground-water resources surveys make available pertinent information of great and immediate value to many State and Federal agencies. As development takes place in any area, demands for more detailed information will arise and studies to supply such information will be undertaken. In the meantime, these reconnaissance type studies are timely and adequately meet the immediate needs for information on the ground-water resources of the areas covered by the reports.

Hugh A. Shamberger, Director
Department of Conservation and
Natural Resources

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GROUND-WATER APPRAISAL OF THE MEADOW VALLEY AREA, LINCOLN AND CLARK COUNTIES, NEVADA

by
F. Eugene Rush

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SUMMARY

The Meadow Valley area includes eight valleys in southeastern Nevada: Patterson, Spring, Eagle, Dry, Rose, Panaca, Clover, and Lower Meadow Valleys. The area is a hydrologic unit forming part of the Colorado River drainage system.

Precipitation within the drainage area and underflow from Lake Valley are the source of virtually all the ground water. Most of the ground water is stored in and transmitted through the Tertiary and Quaternary alluvial valley fill. The Paleozoic carbonate rocks apparently transmit a large amount of ground water from Patterson Valley to Panaca Valley where much of it is discharged as warm water by Panaca Spring. Surface flow is perennial in some reaches of Meadow Valley wash. Storm and snowmelt runoff cause flow to the mouth of the wash during the winter and spring of some years.

The estimated average annual recharge to the area is 24,000 acre-feet from precipitation and 3,000 acre-feet by underflow from Lake Valley, for a total of 27,000 acre-feet. About two-thirds of the recharge occurs in Patterson and Spring Valleys where the bordering mountains are high.

The estimated discharge of water by phreatophytes, principally greasewood, rabbitbrush, and saltbush was 3,600 acre-feet in 1963. It is estimated that wells discharged about 19,000 acre-feet in 1963; the net draft on the ground-water reservoir was about 12,000 acre-feet. Panaca Spring has an estimated flow of 8,000 acre-feet a year, having a net draft of about 4,000 acre-feet. The discharge of ground water due to subsurface outflow from the Meadow Valley area to the lower Moapa Valley was not determined. The ground water in storage in the uppermost 100 feet of saturated alluvium in the area is estimated to be at least 8 million acre-feet.

The preliminary estimate of perennial yield of the area is 25,000 acre-feet. This value cannot be refined until data are available to determine the subsurface outflow from the area. Local overdraft may be occurring in Panaca Valley where net draft now exceeds the local recharge to the valley.

The chemical quality of the ground water is best near the sources of recharge and generally increases in dissolved-mineral content southward