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MAP OM-57

DEPARTMENT OF THE INTERIOR
UNITED STATES GEOLOGICAL SURVEY

PREPARED WITH COOPERATION OF
DEPARTMENT OF GEOLOGY, UNIVERSITY OF NEW MEXICO

GEOLOGY OF THE NACIMIENTO MOUNTAINS SAN PEDRO MOUNTAIN, AND ADJACENT PLATEAUS IN PARTS OF SANDOVAL AND RIO ARRIBA COUNTIES, NEW MEXICO

By
G. H. Wood and S. A. Northrop

OIL AND GAS INVESTIGATIONS
MAP OM-57

PUBLISHED BY THE U. S. GEOLOGICAL SURVEY
WASHINGTON, D. C.
1946

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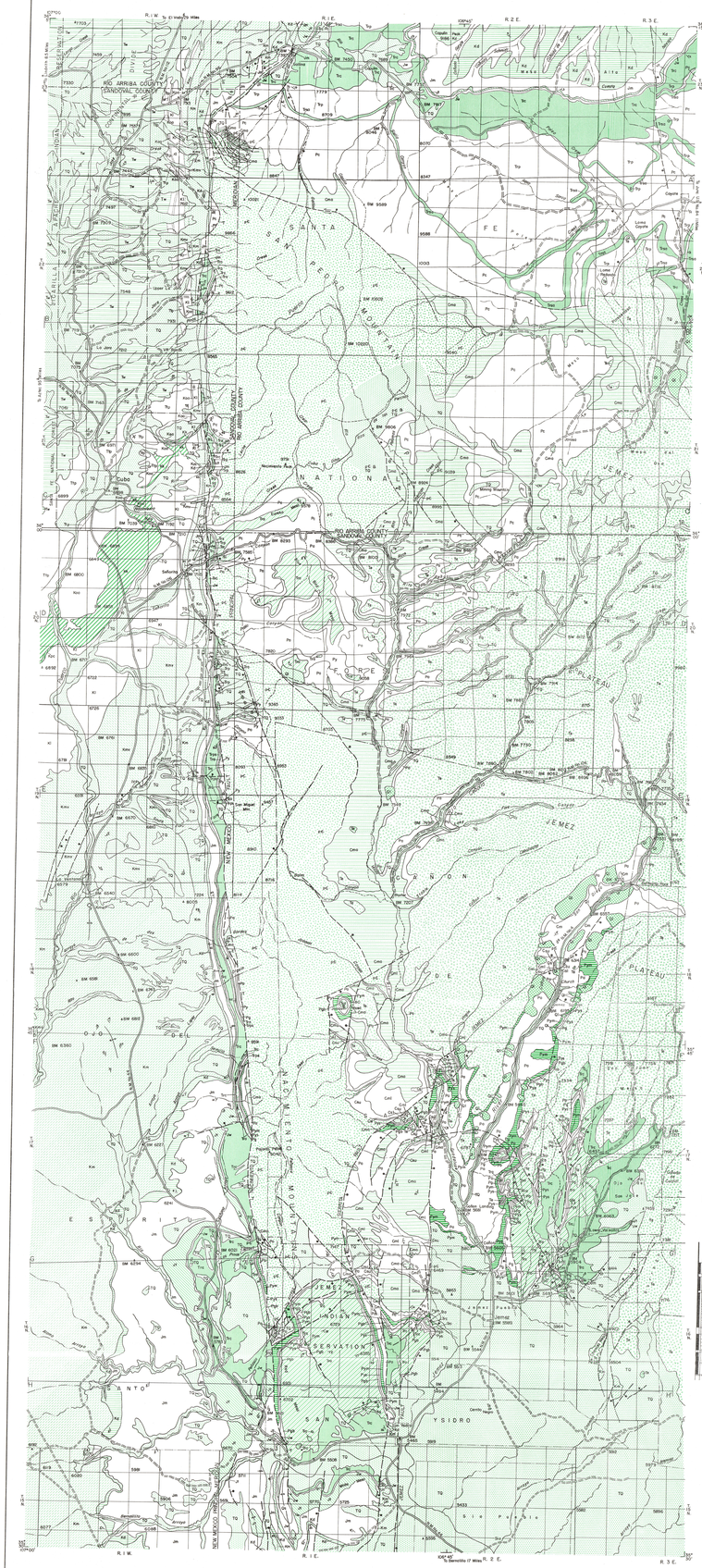
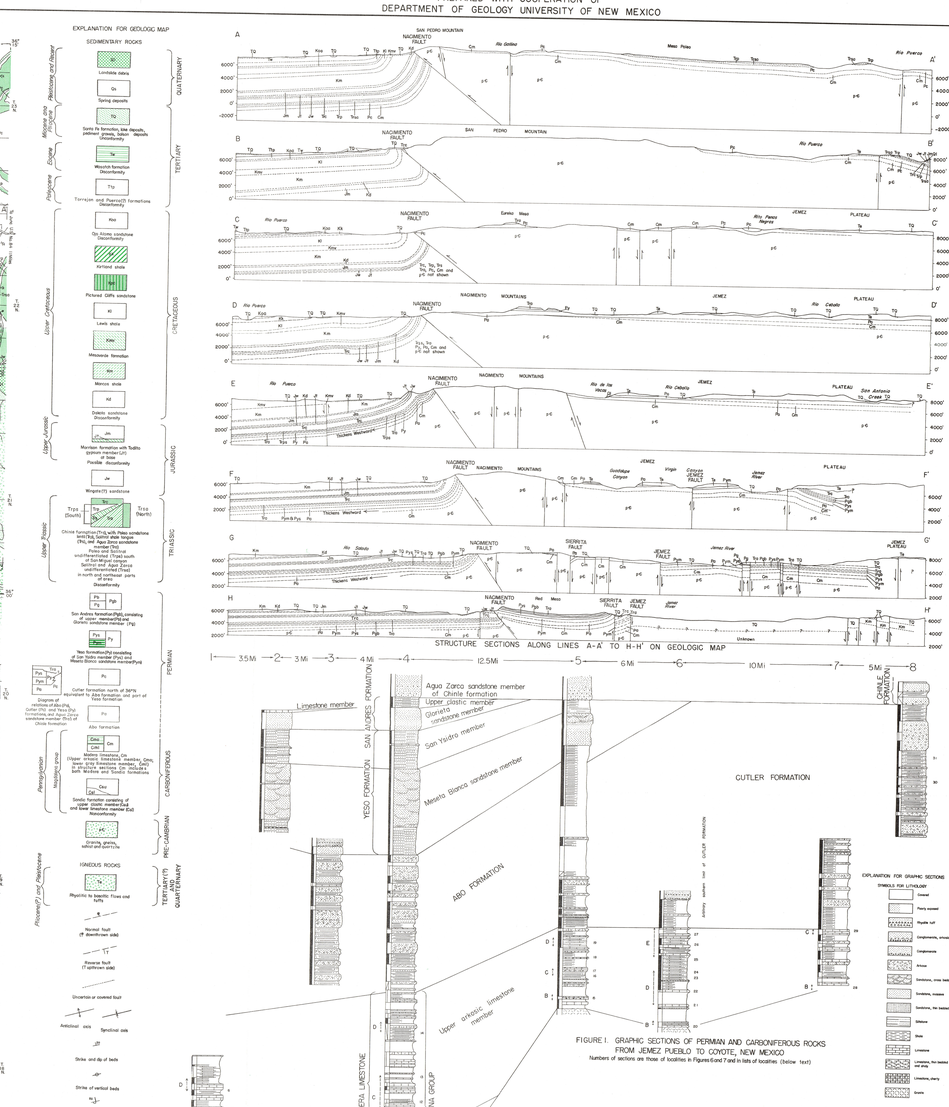
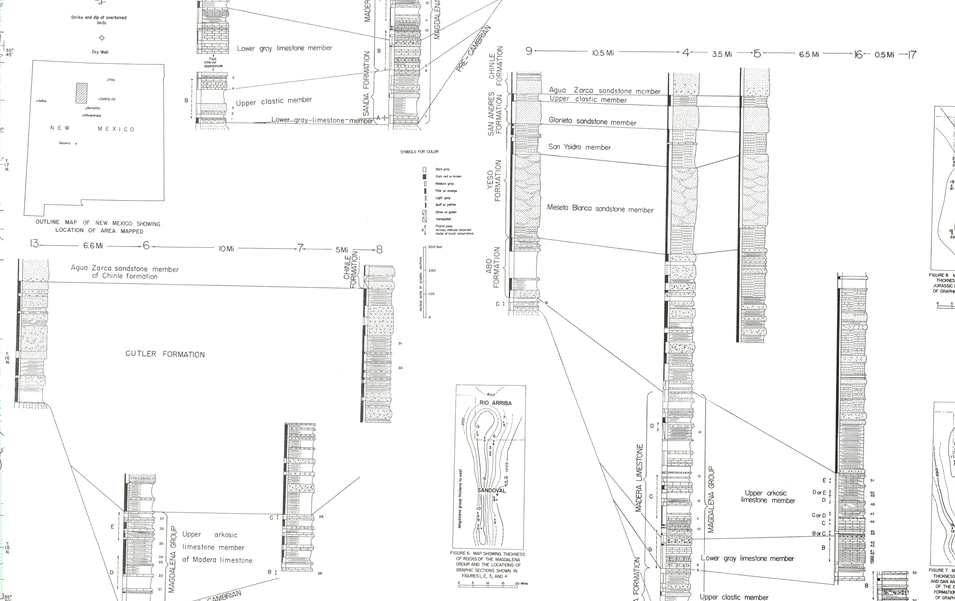
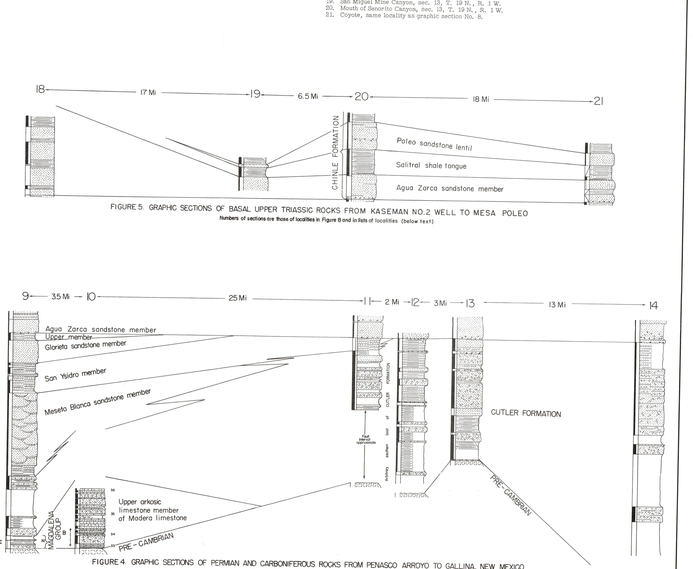
OIL AND GAS INVESTIGATIONS
PRELIMINARY MAP 57



Base of Geologic map compiled from township plats of General Land Office; Soil Conservation Service Quadrangles 81,82,105,106,125,and130; and San Ysidro, Jemez, Jemez Springs, La Ventana, and Cubo Quadrangles of U. S. Geological Survey







GEOLOGY OF NACIMIENTO MOUNTAINS, SAN PEDRO MOUNTAIN, AND ADJACENT PLATEAUS IN PARTS OF SANDOVAL AND RIO ARRIBA COUNTIES, NEW MEXICO

1946

INTRODUCTION

Pennsylvanian and Permian strata underlying the eastern part of the San Juan Basin offer favorable structural conditions for accumulation of oil and gas but have not been sufficiently tested. Exploration of these possible reservoirs is hindered by the lack of a detailed map of the area, guided by all available information on the stratigraphic variations of the rock units. The purpose of this report is to present such information as is now available. The accompanying map and report describes the stratigraphy and structure of the Nacimiento and San Pedro Mountains, which the along part of the eastern flank of the Basin. The geographic distribution and structural relations of the Pennsylvanian and Permian rocks are shown on the map, and the major features are shown in the accompanying cross and diagrams. The eastern third of the area mapped includes the edge of the San Juan Basin and, therefore, lies in the southwestern margin of the San Juan Basin. The structure of the Nacimiento Mountains is controlled by the central portion of the mapped area and is the southwestern-most angle of the Southern Rocky Mountains. The western third of the area includes the eastern part of the mapped area of the Jemez Mountains and appears to be an extension of the Nacimiento Mountains. The Jemez Mountains are a part of the Jemez Plateau, which is bounded from the western margin of Rio Grande. The northeastern part of the mapped area includes part of the Chama Basin, an embayment extension of the San Juan Basin.

A study of the age, thickness, and lateral variations of the Pennsylvanian and Permian strata reveals that they transgressively overlap an old land mass composed of pre-Cambrian rocks and Mississippian limestone. Pennsylvanian and Permian rocks are thin and dissected on uplands, thickness provided by several series in the southeastern part of the area. Pennsylvanian and Permian sedimentary beds lying to the west and southwest, in the Jemez Mountains, are thicker and more complete than those in the southeastern part of the area. Pennsylvanian and Permian formations in a fine-bedded sequence of fine-grained clastic rocks, which are thicker than those in the southeastern part of the area.

In the northern part of the mapped area Triassic rocks are not exposed west of the Nacimiento fault. Thinning strata on ground series in our Triassic have been recognized in these strata since Triassic time. In the northern part of the mapped area, however, Triassic rocks are exposed west of the fault. Triassic rocks are thicker and more complete in south. Jurassic rocks, Jurassic rocks, and Triassic rocks are exposed west of the fault. Jurassic rocks are thicker than those in the Jemez Springs area. Cretaceous rocks are not exposed in this region. Jurassic rocks are thicker than those in the Jemez Springs area. Cretaceous rocks are not exposed in this region. Cretaceous rocks are not exposed in this region. Cretaceous rocks are not exposed in this region