INTRODUCTION

This text is included with the Thompson Springs, Sages and Fairview quadrangles of Grand County, Utah, and extends across a similar area in the neighboring county of Sanpete, Utah. The general geology of the area, as well as discussions of the geology of the various units and formations, are included. The descriptions are based on field work and other available information, including reports by other authors and geologists.

STRATIGRAPHY

The Chinle Formation is the uppermost unit in the stratigraphic column and is divided into two members: the Blue Gate and the Chinle. The Blue Gate member is composed of red beds and conglomerate, while the Chinle member is composed of sandstone, siltstone, and mudstone. The formation is typically thin in the northern part of the area and thickens towards the south.

GEOL O GIC H Y D R O D Y N AMIC S

The Castlegate Sandstone is a major aquifer in the area and is composed of sandstone and conglomerate. It is thought to be recharged by groundwater from the Mancos Shale to the north. The aquifer is overlain by the Chinle Formation and is confined by the Paradox Formation to the south.

ECONOMIC GEOLOGY

The area is rich in mineral resources, with significant deposits of uranium and vanadium. Uranium deposits are found in the Paradox Formation and the Chinle Formation, while vanadium deposits are found in the Castlegate Sandstone. These deposits are primarily located in the Sages and Thompson Springs quadrangles.

LITHOLOGIC COLUMN

The lithologic column includes the following units:

- Paleozoic rock, Paleozoic formations, and Paleozoic rocks
- Permian rocks, Permian formations, and Permian rocks
- Triassic rocks, Triassic formations, and Triassic rocks
- Jurassic rocks, Jurassic formations, and Jurassic rocks
- Cretaceous rocks, Cretaceous formations, and Cretaceous rocks
- Cenozoic rocks, Cenozoic formations, and Cenozoic rocks

The column is divided into formations and members, each of which is described in detail with respect to its lithology, age, and other relevant properties.

REFERENCES

[Provide a list of references relevant to the content of the text]