Abstract

The Elkhorn Ranch area lies in the northwestern part of the state in the Billings and Golden Valley counties. The area is drained by the Tongue River and is characterized by a series of broad, flat tablelands. The area is subject to periodic flooding and has a history of periodic droughts. The area is well suited for agriculture and ranching.

Introduction

The area of the Elkhorn Ranch is characterized by a series of broad, flat tablelands. The area is subject to periodic flooding and has a history of periodic droughts. The area is well suited for agriculture and ranching.

Overview of Investigations

The investigations in the Elkhorn Ranch area were conducted by the North Dakota Geological Survey. The investigations were aimed at understanding the geology and hydrology of the area. The investigations included the collection of geologic samples, the measurement of water levels, and the installation of monitoring wells. The investigations also included the construction of a hydrologic model of the area.

Phyography

The investigations were conducted using a variety of techniques, including ground-penetrating radar, electrical resistivity tomography, and seismic reflection profiling. The data collected from these investigations were used to create a detailed geologic map of the area and to develop a hydrologic model of the area.

Acknowledgments

The investigations were conducted with the assistance of the North Dakota Geological Survey and the Billings County Soil and Water Conservation District. The investigations were funded by the North Dakota Department of Natural Resources and the United States Geological Survey.
**Geology of the Elkhorn Ranch Area (Continued)**

Ser Mears, North Dakota, a resistant quartzite sandstone was exposed near the base of Section A. The thin, white, translucent rock was identified as a conglomerate sandstone with a total thickness of about 1.0 miles. This sandstone appears to be the uppermost unit in the Belt Section and is widespread in the area. The conglomerate sandstone is overlain by a disconformity surface.

**Lithologies**

- **中新统** (Mesozoic Era)
  - **Triassic Period**
    - **Upper Triassic**
      - **Bakken Formation**
        - **Bakken Sandstone**
      - **Cretaceous Period**
        - **Aptian**
          - **Valanginian**
            - **Bakken Formation**
  - **Jurassic Period**
  - **Cretaceous Period**
  - **Tertiary Period**
  - **Quaternary Period**

**Problems of the Sandstone**

The Bakken Sandstone is a complex deposit of various sandstone types, ranging from fine-grained to coarse-grained. The sandstone is characterized by its high porosity and permeability, making it an ideal reservoir for petroleum.

**Depositional Environment**

The Bakken Sandstone was deposited in a fluvial environment, likely a braided river system, characterized by the presence of sandbars and meander belts. The sedimentary structures suggest a fluvial setting, with cross-stratification indicating currents flowing in the downstream direction.

** Petrography**

- **Bakken Sandstone**
  - **Siltstone**
  - **Shale**
  - **Conglomerate**

**Hydrogeology**

- **Aquifer System**
  - **Bakken Formation**
  - **Upper Bakken Sandstone**
  - **Middle Bakken Sandstone**
  - **Lower Bakken Sandstone**

**Summary**

The Bakken Sandstone is a significant petroleum reservoir in the North Dakota region, characterized by its fluvial deposition and high porosity. Further studies are needed to understand the full extent of the reservoir and its potential for exploitation.

**Folds**

- **Elk Ridge**
- **Elk Mountain**
- **Elk Mountain Ridge**

**Structures**

- **North Dakota**
- **Mountrail County**
- **Prairie County**

**Conclusion**

The study of the Bakken Sandstone and its depositional environment provides valuable insights into the geology of the region. Further research is needed to fully understand the potential of this resource and its implications for the local economy.

---

*Note: The above text is a fictional representation based on the given image and does not reflect actual scientific content.*