



EXPLANATION

- Contact
- Normal fault
- Possible thrust fault  
*Sawteeth on upthrown side*
- Fault from photographs
- Concealed fault  
*Showing probable direction of movement.  
Located by airborne magnetometer survey  
and by gravity survey*
- Lineament
- Anticline  
*Showing crestline and direction of plunge*
- Syncline  
*Showing troughline*
- Monocline  
*Showing trace and direction of plunge.  
Dashed where indefinite*
- Breccia pipe or collapse structure in  
Inyan Kara Group or Morrison  
Formation
- Breccia pipe or collapse structure in  
Sundance Formation
- Breccia pipe or collapse structure in  
Spearfish Formation, Minnekahta  
Limestone, or Opeche Formation
- Breccia pipe or collapse structure in  
Minnelusa Formation
- Syncline  
*Possibly formed in part by solution subsidence*
- Area containing structures of possible  
solution origin
- Topographic depression in Inyan Kara  
Group or younger rocks
- Topographic depression in Sundance  
Formation
- Topographic depression in Spearfish  
Formation or Minnekahta Limestone
- ← Paleostream of Tertiary and (or)  
Quaternary age  
*Dashed where inferred*
- x Uranium deposit  
*Some undeveloped prospects in pre-Inyan Kara  
rocks also shown*
- 1 Spring  
*Showing locality number in table 9*
- 7 Water well  
*Showing locality number in table 11*

|            |   |            |   |    |    |    |    |
|------------|---|------------|---|----|----|----|----|
| 104°07'30" |   | 103°22'30" |   |    |    |    |    |
| 4          |   | 3          |   |    |    |    |    |
| 5          |   |            | 2 |    |    |    |    |
| 6          | 7 |            | 1 |    |    |    |    |
|            |   | 8          | 9 | 10 | 11 | 12 |    |
|            |   |            |   | 13 | 14 | 15 | 16 |
| 43°52'30"  |   | 43°15'     |   |    |    |    |    |

INDEX TO SOURCES OF GEOLOGIC DATA  
References are listed in text. Springs located from U.S. Geological Survey topographic maps. Solution collapse structures not mapped in some areas. Uranium deposits shown on geologic maps referenced below.

1. Bowles and Braddock (1963)
2. Redden (1963, pl. 21)
3. Darton and Paige (1925)
4. Brobst and Epstein (1963, pl. 25)
5. Cuppels (1963, pl. 23)
6. Brobst (1961, pl. 5)
7. Braddock (1963, pl. 20)
8. Schnabel (1963, pl. 17)
9. Gott and Schnabel (1963, pl. 12)
10. V. R. Wilmarth, U.S. Geol. Survey unpub. data
11. Wolcott, Bowles, Brobst, and Post (1962)
12. Wolcott (1967, pl. 28)
13. Ryan (1964, pl. 27)
14. Bell and Post (1971, pl. 32)
15. Post (1967, pl. 29)
16. Connor (1963, pl. 11)

MAP SHOWING MAJOR TECTONIC ELEMENTS, MINOR FAULT AND SOLUTION COLLAPSE STRUCTURES, SPRINGS, PALEOSTREAMS, AND URANIUM DEPOSITS IN THE SOUTHERN BLACK HILLS, SOUTH DAKOTA AND WYOMING