THE GEOLOGICAL SURVEY OF WYOMING

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PRELIMINARY MAP OF KNOWN SURFICIAL STRUCTURAL FEATURES FOR THE CASPER 1° x 2° QUADRANGLE

compiled by

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This report has not been reviewed for conformity with the editorial standards of the Geological Survey of Wyoming.

This listing of sources of information and index map were prepared to accompany the preliminary map of known surficial structural features for the Casper 1°x 2° Quadrangle.

Sources of geologic data

General

(These references are the sources of geologic data where more detailed, specific maps were not available).

Blackstone, D.L., Jr., 1983, Laramide compressional tectonics, southeastern Wyoming: University of Wyoming Contributions to Geology, v. 22, no. 1, p. 1-38, figures at various scales.

Case, J.C., 1986, Earthquakes and related geologic hazards in Wyoming: Geological Survey of Wyoming Public Information Circular 26, 22 p., sheet 1, scale 1:1,000,000.

Hares, C.J., and others, 1946, Geologic map of the southeastern part of the Wind River Basin and adjacent areas in southeastern Wyoming: U.S. Geological Survey Oil and Gas Investigations Preliminary Map OM-51, scale 1:126,720.

Love, J.D., 1986, personal communication (confirmation of mapping in the Granite Mountains area).

Love, J.D., Christansen, A.C., Earle, J.L., and Jones, R.W., compilers, 1979, Preliminary geologic map of the Casper 1°x 2° Quadrangle, central Wyoming: U.S. Geological Survey Open File Report 79-961, scale 1:250,000.

Specific - published

1. **Bayley, R.W.**, 1968, Geologic map of the Bradley Peak Quadrangle, Carbon County, Wyoming: U.S. Geological Survey Geologic Quadrangle Map GQ-773, scale 1:24,000.

2. **Blackstone, D.L., Jr.**, 1965, Gravity thrusting in the Bradley Peak - Seminoe Dam Quadrangles, Carbon County, Wyoming, and the relationship to the Seminoe iron deposits: Geological Survey of Wyoming Preliminary Report 6, 13 p., plate 1, scale 1:26,400.

3. **Blackstone, D.L., Jr.**, Sears, J.W., and Wilson, B.D., compilers, 1976, Geologic map of the Paleozoic rocks along the northern flank of the Laramie Mountains, Wyoming: Prepared by the Wyoming Water Resources Research Institute for the Wyoming State Engineer in cooperation with the Office of the Water Research and Technology, map scale 1:48,000.

4. **Blanchard, L.F.**, 1981, Geologic map and coal deposits of the Seminoe Dam SE Quadrangle, Carbon County, Wyoming: U.S. Geological Survey Open File Report 81-717, map scale 1:24,000.

5. **Burford, A.E.**, 1986, Structure and stratigraphy of the east plunge of Casper Mountain, Natrona County, Wyoming: Earth Science Bulletin, v. 19, part 2, p. 125-129, map scale 1:33,333.

6. **Crist, M.A.**, and Lowry, M.E., 1972, Ground-water resources of Natrona County, Wyoming: U.S. Geological Survey Water Supply Paper 1897, 92 p., plate 2, scale 1:125,000.

7. **Cserna, E.G.**, Kerns, G.J., and Laraway, W.H., 1938, Bedrock geologic map of the Pine Mountain - Oil Mountain area, Natrona County, Wyoming: U.S. Geological Survey Open File Report 83-748, scale 1:31,680.

8. **Denson, N.M.**, and Harshman, E.N., 1969, Map showing areal distribution of Tertiary rocks, Bates Hole - Shirley Basin area, south-central Wyoming: U.S. Geological Survey Miscellaneous Geologic Investigations Map I-570, scale 1:125,000.

9. **Gable, D.J.**, and Burford, A.E., 1982, Map of the Precambrian geology of Casper Mountain, Natrona County, Wyoming: U.S. Geological Survey Open File Report 82-67, microfiche, original scale 1:20,000.

10. **Harshman, E.N.**, 1968, Geologic map of the Shirley Basin area, Albany, Carbon, Converse, and Natrona Counties, Wyoming: U.S. Geological Survey Miscellaneous Geologic Investigations Map I-539, scale 1:48,000.

11. **Keefer, W.R.**, 1970, Structural geology of the Wind River Basin, Wyoming: U.S. Geological Survey Professional Paper 495-D, 35 p., plate 1, scale 1:250,000.

12. **Knight, S.H.**, 1951, Late Cretaceous - Tertiary history of the northern portion of the Hanna Basin, Carbon County, Wyoming: Wyoming Geological Association 6th Annual Field Conference Guidebook, plate II, scale 1;52,800.

13. **Love, J.D.**, 1970, Cenozoic geology of the Granite Mountains area, central Wyoming: U.S. Geological Survey Professional Paper 495-C, 154 p., plate 1, scale 1:125,000.

14. **Love, J.D.**, and Weitz, J.L., 1951, Geologic map of south-central Wyoming: U.S. Geological Survey unnumbered map, scale approximately 1:158,000.

15. **McAndrews, Harry**, 1963, Geologic map of the Riddle Cut Quadrangle, Carbon County, Wyoming: U.S. Geological Survey Miscellaneous Field Studies Map MF-263, scale 1:24,000.

16. **Masursky, Harold**, 1962, Uranium-bearing coal in the eastern part of the Red Desert area, Wyoming: U.S. Geological Survey Bulletin 1099-B, 152 p., plate 1, scale 1:62,500.

17. **Merewether, E.A.**, 1971, Geologic map of the Wild Horse Mountain Quadrangle, Carbon County, Wyoming: U.S. Geological Survey Geologic Quadrangle Map GQ-887, scale 1:24,000.

18. **Merewether, E.A.**, 1972, Geologic map of the Seminoe Dam SW Quadrangle, Carbon County, Wyoming: U.S. Geological Survey Geologic Quadrangle Map GQ-1017, scale 1:24,000.

19. **Minard, J.P.**, 1980, Photogeologic maps of the Miles Ranch and Love Ranch Quadrangles, Fremont and Natrona Counties, Wyoming: U.S. Geological Survey Open File Report 80-472, scale 1:24,000.

20. **Reynolds, M.W.**, 1968, Geologic map of the Muddy Gap Quadrangle, Carbon County, Wyoming: U.S. Geological Survey Geologic Quadrangle Map GQ-771, scale 1:24,000.

21. **Reynolds, M.W.**, 1968, Geologic map of the Whiskey Peak Quadrangle, Carbon, Fremont, and Sweetwater Counties, Wyoming: U.S. Geological Survey Geologic Quadrangle Map GQ-772, scale 1:24,000.

22. **Reynolds, M.W.**, 1971, Geologic map of the Lamont Quadrangle, Carbon County, Wyoming: U.S. Geological Survey Geologic Quadrangle Map GQ-912, scale 1:24,000.

23. **Reynolds, M.W.**, 1971, Geologic map of the Bairoil Quadrangle, Sweetwater and Carbon Counties, Wyoming: U.S. Geological Survey Geologic Quadrangle Map GQ-913, scale 1:24,000.

24. **Rich, E.I.**, 1962, Reconniassance geology of Hiland-Clarkson Hill area, Natrona County, Wyoming: U.S. Geological Survey Bulletin 1107-G, p. 447-540, plate 7, scale 1:31,680.

25. **Rioux, R.L.**, and Staatz, M.H., 1974, Geologic map of the Ferris Quadrangle, Carbon County, Wyoming: U.S. Geological Survey Geologic Quadrangle Map GQ-1124, scale 1:24,000.

26. **Schmitt, L.J., Jr.**, 1977, Geologic map of the Brenton Springs Quadrangle, Fremont and Sweetwater Counties, Wyoming: U.S. Geological Survey Miscellaneous Field Studies Map MF-926, scale 1:24,000.

27. **Schmitt, L.J., Jr.**, 1979, Geologic map of the Sagebrush Park Quadrangle, Fremont and Sweetwater Counties, Wyoming: U.S. Geological Survey Geologic Quadrangle Map GQ-1512, scale 1:24,000.

28. **Schmitt, L.J., Jr.**, 1979, Geologic map of the Crooks Peak Quadrangle, Fremont and Sweetwater Counties, Wyoming: U.S. Geological Survey Geologic Quadrangle Map GQ-1517, scale 1:24,000.

29. **Sharp, W.N.**, and Gibbons, A.B., 1964, Geology and uranium deposits of the southern part of the Powder River Basin, Wyoming: U.S. Geological Survey Bulletin 1147-D, 60 p., plate 1, scale 1:62,500.

30. **Soister, P.E.**, 1966, Geologic map of the Muskrat Basin Quadrangle, Fremont County, Wyoming: U.S. Geological Survey Miscellaneous Geologic Investigations Map I-482, scale 1:48,000.

31. **Soister, P.E.**, 1966, Geologic map of the Rongis Reservoir SE Quadrangle, Fremont County, Wyoming: U.S. Geological Survey Miscellaneous Geologic Investigations Map I-438, scale 1:24,000.

32. **Soister, P.E.**, 1967, Geologic map of the Coyote Springs Quadrangle, Fremont County, Wyoming: U.S. Geological Survey Miscellaneous Geologic Investigations Map I-481, scale 1:24,000.

33. **Soister, P.E.**, 1967, Geology of the Puddle Springs Quadrangle, Fremont County, Wyoming: U.S. Geological Survey Bulletin 1242-C, 36 p., map scale 1:24,000.

34. **Soister, P.E.**, 1968, Stratigraphy of the Wind River Formation in south-central Wind River Basin, Wyoming: U.S. Geological Survey Professional Paper 594-A, 50 p., plate 1, scale 1:63,360.

35. **Stephens, J.G.**, 1964, Geology and uranium deposits at Crooks Gap, Fremont County, Wyoming: U.S. Geological Survey Bulletin 1147-F, 82 p., plate 1, scale 1:48,000.

36. **Van Houten, F.B.**, 1964, Tertiary geology of the Beaver Rim area, Fremont and Natrona Counties, Wyoming: U.S. Geological Survey Bulletin 1164, 99 p., plate 2, scale 1:62,500.

37. **Weitz, J.L.**, and Love, J.D., 1952, Geologic map of Carbon County, Wyoming: Geological Survey of Wyoming miscellaneous map, scale 1:158,400.

38. **Zeller, H.D.**, Soister, P.E., and Hyden, H.J., 1956, Preliminary geologic map of the Gas Hills uranium district, Fremont and Natrona Counties, Wyoming: U.S. Geological Survey Miscellaneous Field Studies Map MF-83, sheet 1, scale 1:31,680.

Specific - theses (see separate index map)

1. **Allspach, H.G.**, 1955, Geology of a part of the south flank of the Seminoe Mountains, Carbon County, Wyoming: M.A. thesis, University of Wyoming, Laramie, Wyoming, 65 p., plate 2, scale 1:24,000.

2. **Barlow, J.A., Jr.**, 1953, The geology of the Rawlins uplift, Carbon County, Wyoming: Ph.D. dissertation, University of Wyoming, Laramie, Wyoming, 179 p., plate 16, scale 1:31,680.

3. **Bergstrom, J.R.**, 1950, Geology of the east portion of Casper Mountain and vicinity: M.S. thesis, University of Wyoming, Laramie, Wyoming, map scale 1:15,840.

4. **Berryman, R.J.**, 1942, The geology of the Deer Creek-Little Deer Creek area, Converse County, Wyoming: M.A. thesis, University of Wyoming, Laramie, Wyoming, 51 p., plate 1, scale 1:24,000.

5. **Bogrett, J.W.**, 1951, Geology of the northwestern end of the Rattlesnake Hills, Natrona County, Wyoming: M.S. thesis, University of Wyoming, Laramie, Wyoming, map scale 1:21,120.

6. **Brown, O.P.**, 1939, The geology of the Difficulty-Little Shirley Basin area, Carbon County, Wyoming: M.S. thesis, University of Wyoming, Laramie, Wyoming, map scale 1:24,000.

7. **Carey, B.D., Jr.**, 1950, Geology of the eastern part of Flat Top anticline, Albany and Carbon Counties, Wyoming: M.S. thesis, University of Wyoming, Laramie, Wyoming, map scale 1:31,680.

8. **Cooper, H.T.**, 1951, Geology of the western Seminoe Mountains: M.S. thesis, University of Wyoming, Laramie, Wyoming, map scale 1:31,680.

9. **Dickey, M.L.**, 1962, Upper Cretaceous and Cenozoic history of the Green Mountain-Whiskey Peak area, Fremont County, Wyoming: M.S. thesis, University of Wyoming, Laramie, Wyoming, map scale 1:24,000.

10. **Emry, R.J.**, 1970, Stratigraphy and paleontology of the Flagstaff Rim area, Natrona County, Wyoming: Ph.D. dissertation Columbia University, New York, New York, 195 p., map scale 1:21,600.

11. **Faulkner, G.L.**, 1950, Geology of the Bessemer Mountain-Oil Mountain area, Natrona County, Wyoming: M.S. thesis, University of Wyoming, Laramie, Wyoming, map scale 1:21,120.

12. **Finnell, T.L.**, 1951, Structural relationships of the Seminoe-Shirley syncline, Carbon County, Wyoming: M.S. thesis, University of Wyoming, Laramie, Wyoming, map scale 1:21,120.

13. **Giddings, H.J.**, 1935, The geology of a portion of the Laramie Basin lying north of Como anticline, Albany County, Wyoming: M.A. thesis, University of Wyoming, Laramie, Wyoming, 46 p., plate 11, scale 1:42,240,

14. **Gist, J.G.**, 1957, Geology of the north Freezeout Hills and adjacent areas, Carbon and Albany Counties, Wyoming: M.A. thesis, University of Wyoming, Laramie, Wyoming, 112 p., plate 3, scale 1:187,500 (north part of map was not used).

15. **Heisey, E.L.**, 1949, Geology of the east Ferris Mountains, Carbon County, Wyoming: M.S. thesis, University of Wyoming, Laramie, Wyoming, map scale approximately 1:20,000.

16. **Jenkins, C.E.**, 1950, Geology of the Bates Creek-Corral Creek area, Natrona County, Wyoming: M.S. thesis, University of Wyoming, Laramie, Wyoming, map scale 1:21,120.

17. **Landau, David**, 1966, Structural geology of the northern Shirley Mountains, Carbon County, Wyoming: M.S. thesis, University of Wyoming, Laramie, Wyoming, 83 p., map scale 1:28,800.

18. **Lawson, D.E.**, 1949, Geology of the west Ferris Mountains, Carbon County, Wyoming: M.S. thesis, University of Wyoming, Laramie, Wyoming, map scale 1:31,680.

19. **Maravich, M.D.**, 1940, The geology of the Freezeout Mountain-Bald Mountain area, Carbon County, Wyoming: M.S. thesis, University of Wyoming, Laramie, Wyoming, map scale 1:24,000.

20. **Master, T.D.**, 1977, Geological and geochemical evaluation of rock and mineral occurrences in the Precambrian of the Ferris Mountains, Carbon County, Wyoming: M.S. thesis, University of Wyoming, Laramie, Wyoming, map scale 1:12,000.

21. **Mitchell, S.D.**, 1957, Geology of the eastern Alcova-Bear Creek area, Natrona County, Wyoming: M.A. thesis, University of Wyoming, Laramie, Wyoming, 71 p., plate 4, scale 1:24,000.

22. **Pekarek, A.H.**, 1974, The structural geology and igneous petrology of the Rattlesnake Hills, Wyoming: Ph.D. dissertation, University of Wyoming, Laramie, Wyoming, 111 p., map scale 1:24,000.

23. **Riva, J.P., Jr.**, 1959, The geology of the Sheep Creek - Middle Cottonwood Creek area, Fremont County, Wyoming: M.S. thesis, University of Wyoming, Laramie, Wyoming, 82 p., plate 1, scale 1:24,000 (partially used).

24. **Schwarberg, T.M., Jr.**, 1959, The geology of Muddy Mountain, southeast Natrona County, Wyoming: M.A. thesis, University of Wyoming, Laramie, Wyoming, 103 p., plate 16, scale approximately 1:20,000.

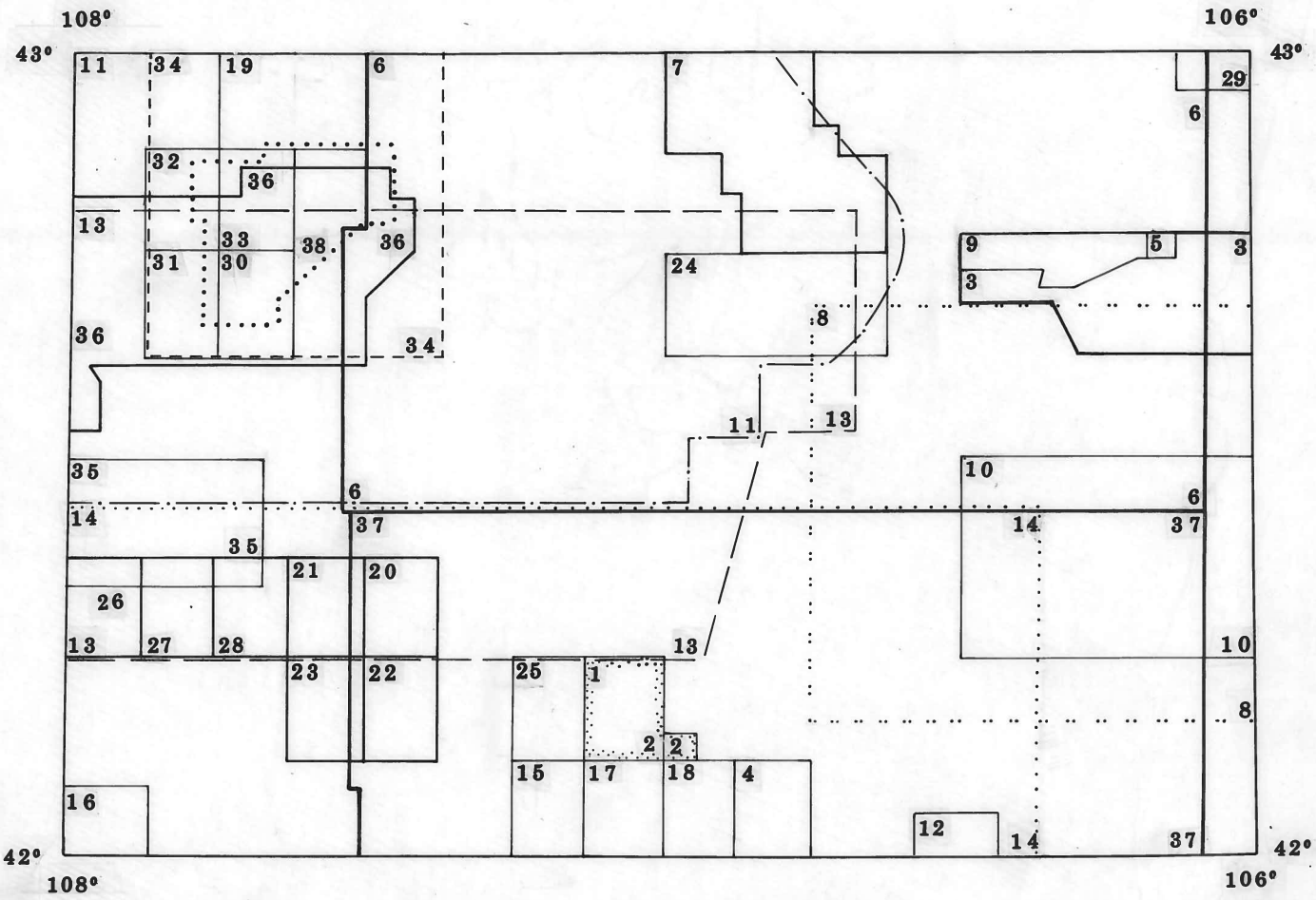
25. **Sears, W.A., Jr.**, 1949, Geology of the Deer Creek-Smith Creek area, Converse and Natrona Counties, Wyoming: M.S. thesis, University of Wyoming, Laramie, Wyoming, map scale approximately 1:23,000.

26. **Sheffer, B.D.**, 1951, Geology of the western Alcova area: M.S. thesis, University of Wyoming, Laramie, Wyoming, map scale 1:21,120.

27. **Sims, F.C.**, 1948, Geology of the west end of the Laramie Range [Casper Mountain], Natrona County, Wyoming: M.S. thesis, University of Wyoming, Laramie, Wyoming, map scale 1:24,000.

28. **Umbach, E.D.**, 1948, Geology of the Sage Creek area, Carbon County, Wyoming: M.S. thesis, University of Wyoming, Laramie, Wyoming, map scale 1:31,680.

29. **Van Ingen, L.B.**, 1978, Structural geology and tectonics - Troublesome Creek Valley area, Carbon County, Wyoming: M.S. thesis, University of Wyoming, Laramie, Wyoming, map scale 1:24,000.



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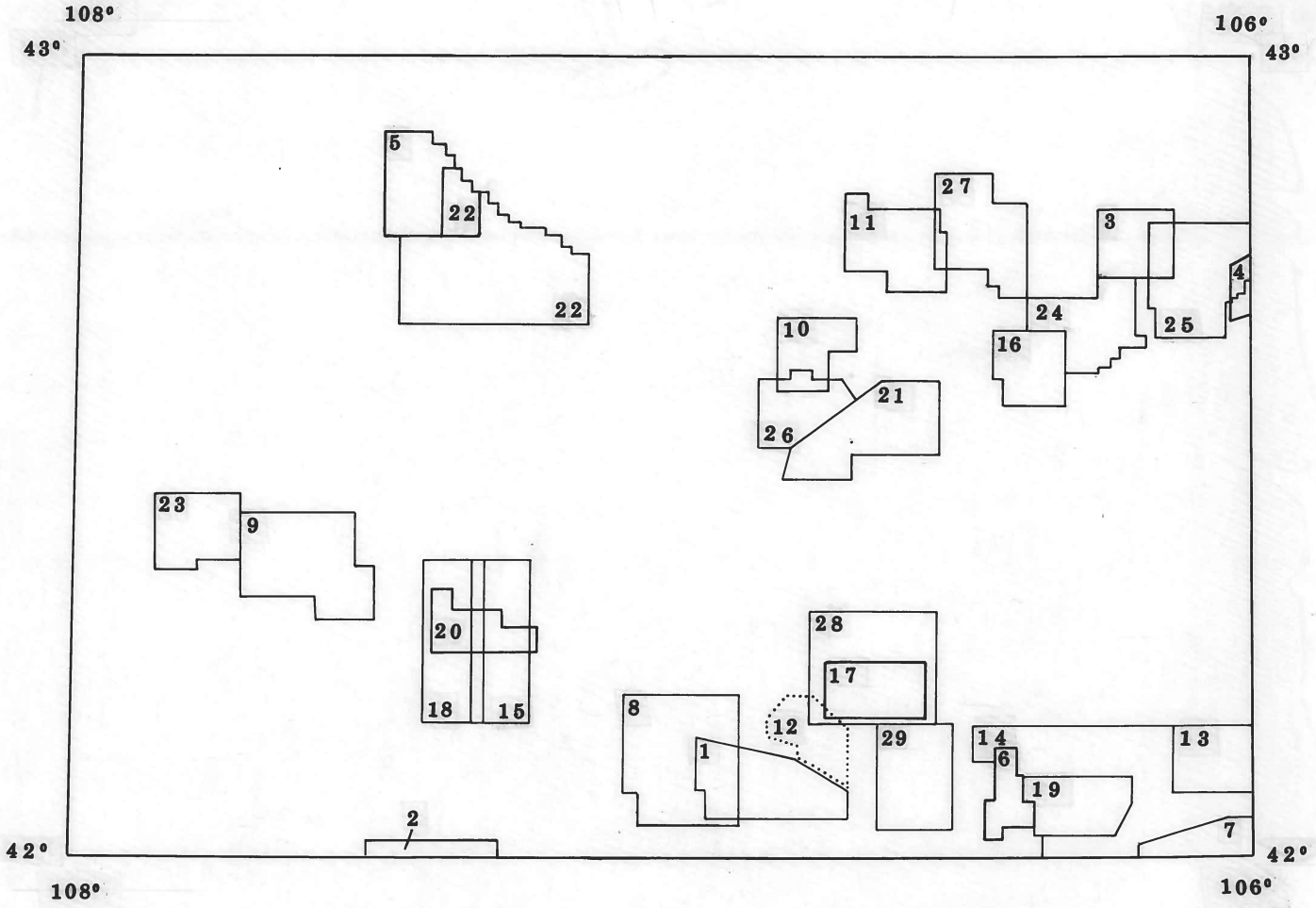

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EXPLANATION

Dome

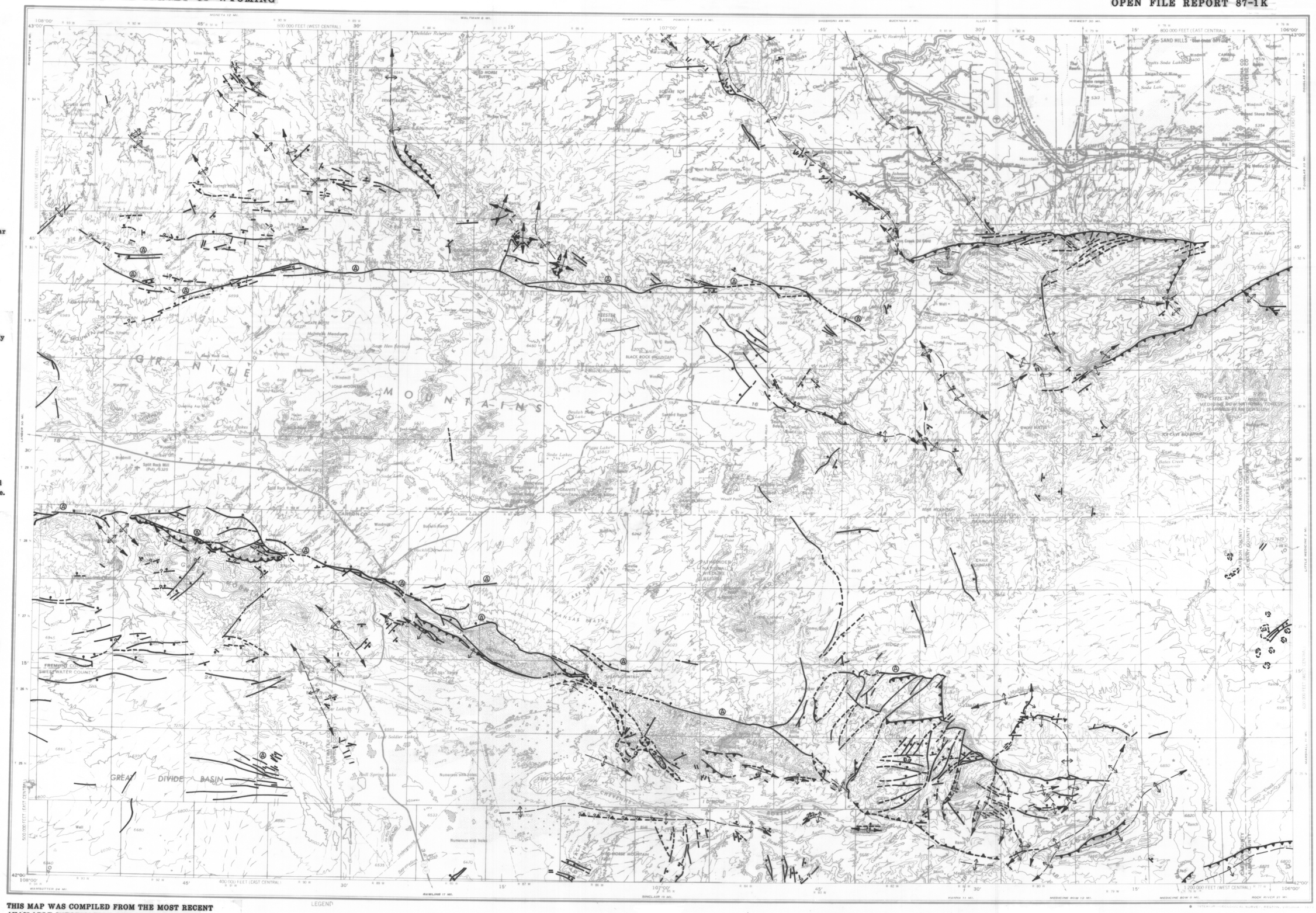
Anticline- arrows perpendicular to axis show symmetry, i.e., short arrow indicates flank with steeper dip. Axis is dashed where covered or approximately located. Arrow on axis indicates direction of plunge.

Normal Faults- ball on downthrown block (dashed where covered or approximately located). Queried where existence is questionable.

Thrust/Reverse Faults- teeth on upthrown block (dashed where covered or approximately located). Queried where existence is questionable.

Detachment Faults- open squares on detachment block (dashed where covered or approximately located). Queried where existence is questionable.

Ⓐ **Possible Active Fault**- as identified by Case (1986).



THIS MAP WAS COMPILED FROM THE MOST RECENT AVAILABLE INFORMATION AND IS ONLY AS RELIABLE AND COMPLETE AS THE SOURCES CONSULTED. SOME SMALLER FEATURES WERE OMITTED SINCE THEY COULD NOT BE PLOTTED AT THIS SCALE. SOURCES CONSULTED ARE LISTED IN ACCOMPANYING REFERENCE LIST.

LEGEND

5 0 5 10 15 20 Statute Miles

5 0 5 10 15 20 25 30 Kilometres

5 0 5 10 15 Nautical Miles

CONTOUR INTERVAL 200 FEET
WITH SUPPLEMENTARY CONTOURS AT 100 FOOT INTERVALS
TRANSVERSE MERCATOR PROJECTION

BASE MAP FROM THE U.S. GEOLOGICAL SURVEY, 1955.

THIS MAP HAS NOT BEEN REVIEWED FOR CONFORMITY WITH THE EDITORIAL STANDARDS OF THE GEOLOGICAL SURVEY OF WYOMING.

PRELIMINARY MAP OF KNOWN SURFICIAL STRUCTURAL FEATURES FOR THE CASPER 1° x 2° QUADRANGLE

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