Aquifer Vulnerability Map of Madison Aquifer (Pahasapa Limestone), Rapid City West Quadrangle

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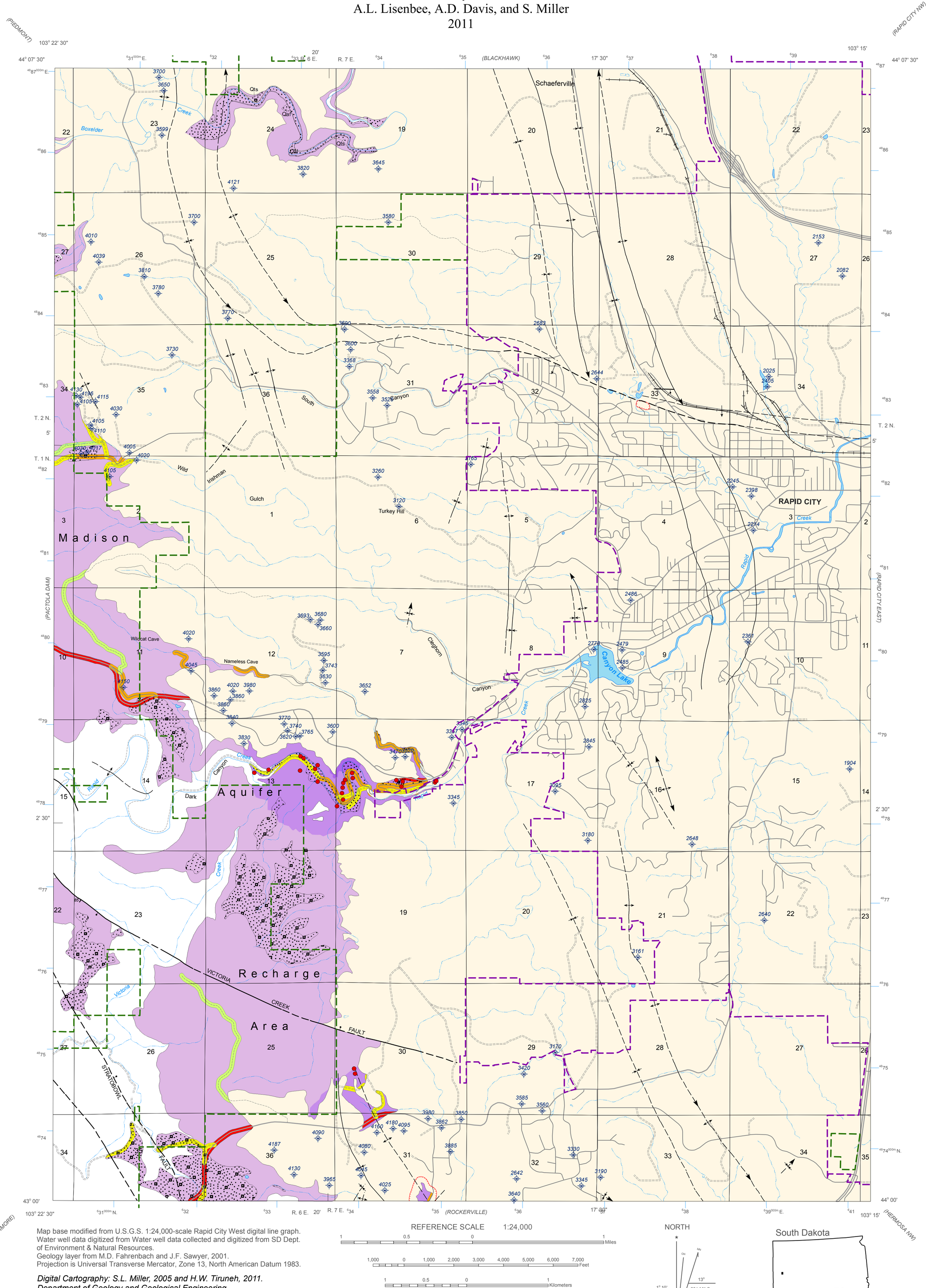

Map base modified from U.S.G.S. 1:24,000-scale Rapid City West digital line graph.
Water well data digitized from Water well data collected and digitized from SD Dept. of Environment & Natural Resources.
Geology layer from M.D. Fahrenbach and J.F. Sawyer, 2001.
Projection is Universal Transverse Mercator, Zone 13, North American Datum 1983.

Digital Cartography: S.L. Miller, 2005 and H.W. Tiruneh, 2011.
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REFERENCE SCALE 1:24,000

1 0.5 0 1 Miles
1,000 0 1,000 2,000 3,000 4,000 5,000 6,000 7,000 Feet
1 0.5 0 1 Kilometers

NORTH

UTM GRID AND 1971 MAGNETIC NORTH DECLINATION AT CENTER OF SHEET

South Dakota

Quadrangle location

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Definition of Vulnerability

Aquifer vulnerability is the potential or likelihood that any contaminant could reach the ground-water supply, based on designated parameters described below.

Areas of increased aquifer vulnerability due to the presence of on-site wastewater disposal systems in the Madison recharge area.

Density (number of OSWDS per sq. mi.)	Rating
0 - 10	Low to Medium
10 - 40	Medium to High
40 - 44	High to Very High

Increased aquifer vulnerability due to the presence of roads (buffered 100 feet on either side) in the Madison recharge area.

Type of Road	Rating
Trail	Low
Dirt Road	Low to Medium
Paved Road	Medium to High
Highway	High to Very High

EXPLANATION

- Intermittent Stream
- Perennial Stream
- Karst Features
- Rapid City Limits
- Black Hills Nat. Forest Boundary
- Interstate
- Railroad
- Lake
- Springs
- Wells penetrating Madison aquifer — *Number indicates elevation of top of Pahasapa Fm, in feet* (e.g. 3565)
- On-Site Wastewater Disposal System (OSWDS)
- Contact — Solid where location certain; dashed where approximately located.
- Fault — Solid where location certain; dashed where approximately located; queried where uncertain. Bar and ball on downthrown side.
- Anticline — Showing crestline and direction of plunge. Solid where location certain; dashed where approximately located.
- Syncline — Showing troughline and direction of plunge. Solid where location certain; dashed where approximately located.
- Monocline - Anticlinal bend — Axis located on steepest part of structure. Solid where location certain; dashed where approximately located.
- Monocline - Synclinal bend — Axis located on steepest part of structure. Solid where location certain; dashed where approximately located.

Geologic Units

Recharge Area — Units present include alluvium (Qal) with stippled pattern, terrace deposits (Qt, Qt_2, Qt_3) with coarse stippled pattern, Pahasapa Formation (Mp) with no pattern. Color indicates varying degree of vulnerability; see "Definition of Vulnerability".

Pahasapa Formation Present in Subsurface

Pahasapa Formation Absent