

STOP 6A

LAKE ARDMORE SANDSTONE MEMBER OF THE SPRINGER FORMATION (MGM Ranch Section)

*Location: SE¼SE¼SW¼SE¼ sec. 27, T. 3 S., R. 1 E.,
and the NE¼NE¼NW¼NE¼ sec. 34, T. 3 S., R. 1 E.,
Carter County (Springer 7.5' quadrangle)*

This stop is on private property.

Please contact Michael G. McCauley, 2410 N. Commerce, Ardmore, Oklahoma, phone (580) 226-0812 (business) or (580) 223-5872 (home) for permission to visit outcrops.

Directions: From Stop 5, drive 3 mi south along the section road; turn left and drive 0.5 mi east; turn left and travel 0.4 mi north; finally, turn right and drive 1.3 mi east. The Lake Ardmore Sandstone forms a prominent ridge that crosses the driveway to the MGM Ranch, just before it curves to the north.

The resistant Lake Ardmore Sandstone of the Springer Formation (Fig. 28) forms a prominent "wall" (Fig. 29) at this stop. Two units of the member are exposed (Fig. 28, Units 1, 2). The upper 9-ft-thick Unit 2 appears to be in sharp contact with an overlying, covered (probably shale) unit. Unit 2 contains casts of fossil wood fragments (Fig. 30) and well-developed boxwork concretionary structures (Fig. 31). Note the thin-bedded, parallel-bedded, ripple-bedded, burrowed character of the unit (Fig. 32). The stratigraphically lower Unit 1 consists of interbedded shale and sandstone (Fig. 28); it is poorly exposed for ~8 ft just north of the driveway.

This relatively thin sandstone is probably part of a detached bar complex deposited within an inner- to middle-shelf marine environment. The resistant "wall" includes the cleanest and best-cemented sandstone, which constitutes the lower bar facies. This interpretation is based upon the prevalence of thin-, planar- and ripple-bedded sandstone, the absence of interbedded shale, as well as the absence of high-angle cross-bedding. The absence of a central bar facies (upper bar facies) in this outcrop indicates that this offshore bar was deposited in water depths below normal wave base. There was not enough current energy to form well-developed high-angle cross-bedding. Alternatively, the upper bar facies may have been deposited but eroded prior to burial.

Although the strata immediately below the measured section are covered, it is likely that additional sandstone and interbedded siltstone and shale occur below the outcrop. A comparison of the surface GR profile with the GR log for the Lake Ardmore section in the Samson Resources No. 1 Patzkowsky well indicates that a considerable amount of interbedded sandy and silty strata occurs in the transition zone below the principal bar facies (1,406–1,417 ft) (Fig. 33). In the surrounding area, many other wells also have "clean" sandstone that can be correlated to the 1,417–1,470-ft interval in the Samson well.

Stop 6A Lake Ardmore Sandstone Member of the Springer Formation (MGM Ranch Section)

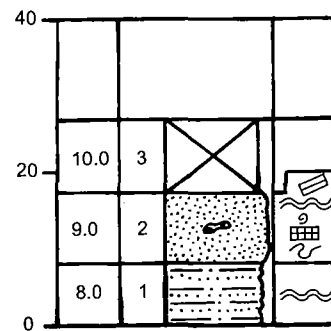


Figure 28. Graphic columnar section of rocks exposed on both sides of the driveway to MGM Ranch at Stop 6A. Explanation of symbols in Appendix 1.

MEASURED SECTION, STOP 6A

Lake Ardmore Sandstone Member of the Springer Formation (MGM Ranch Section)

SE¼SE¼SW¼SE¼ sec. 27, T. 3 S., R. 1 E., and the NE¼NE¼NW¼NE¼ sec. 34, T. 3 S., R. 1 E., Carter County (Springer 7.5' quadrangle). Measured by LeRoy A. Hemish in the ridge on both sides of the ranch driveway, just before it curves to the north. Beds strike N. 25° W. and dip S. 65° W. at 65°.

Thickness
(feet)

SPRINGER FORMATION

UNNAMED SHALE (?)

3. Covered (probably shale) 10.0

LAKE ARDMORE MEMBER

2. Sandstone, grayish orange (10YR7/4), to dark yellowish orange (10YR6/6), very fine grained, well sorted, subrounded, quartzose, noncalcareous, thin-bedded, ripple-bedded, parallel-bedded, indistinct interference ripples on some surfaces, burrows abundant; ironstone concretions common, with extensive boxwork on the steeply dipping "wall," south side of driveway; sandstone cast of wood fragment (1 × 4 in.) near top of unit on north side of road; sponge spicules present but difficult to find; unit coarsens upwards; upper and lower contacts covered—lower contact probably gradational, while upper contact appears sharp and is presumably a sandstone-shale contact 9.0

1. Shale and sandstone, interbedded, grayish orange (10YR7/4) to moderate yellowish brown (10YR 5/4). Sandstone is similar to Unit 2, and shale is very silty and sandy; slumped and poorly exposed at east side of outcrop, just north of driveway ~8.0

Total ~27.0