

## **GEOMORPHOLOGY AND FAILURE HISTORY OF THE EARTHQUAKE-INDUCED FARMINGTON SIDING LANDSLIDE COMPLEX, DAVIS COUNTY, UTAH**

**LOWE, Mike, and HARTY, Kimm M., Utah Geological Survey, 2363 S. Foothill Drive, Salt Lake City, UT 84109-1491.**

The Farmington Siding landslide complex covers an area of 19.5 km<sup>2</sup> in central Davis County. First identified and mapped in the 1970s, the feature was classified by previous researchers as a liquefaction-induced lateral spread based on surface geomorphology and exposures on the landslide complex. This was the first landslide in Utah to be attributed to earthquake-induced liquefaction. Geomorphic and geologic evidence indicate that the Farmington Siding landslide complex likely consists of liquefaction-induced landslides that failed by means of both flow failure and lateral spreading.

The landslide complex is located in an area underlain primarily by fine-grained deposits of Pleistocene Lake Bonneville and Holocene Great Salt Lake. Geomorphic features of the landslide complex include main and minor scarps, hummocks, closed depressions, and transverse lineaments. The main scarp consists mostly of a series of arcuate scallops near the left flank of the landslide, but it is a relatively linear, single scarp near the right flank of the landslide. Hummocks and closed depressions are most common near the head region of the landslide complex. The hummocks, some of which may be degraded minor scarps, are elongate parallel to the main scarp in the head region of the landslide complex, but orientation becomes more random with increasing distance from the head. Lacustrine stratification is commonly preserved within the hummocks, though contorted in places, but stratification is generally not present in sandy sediments between the hummocks. Transverse lineaments, which may represent ground cracks due to lateral spreading, occur mainly in the central portion of the landslide complex.

Failure of the Farmington Siding landslide complex has occurred at least twice. The older, distal portion of the landslide complex is cut by the Gilbert shoreline of the Bonneville lake cycle, indicating that landsliding occurred more than 10,000 years ago. In the younger portion of the landslide complex, landsliding has disrupted the Gilbert shoreline. Radiocarbon age estimates from trenches on a hummock near the main scarp of the younger landslide indicate that slope failure occurred sometime between about 2,730 ± 370 cal. yr B.P. and 4,530 ± 300 cal. yr B.P., possibly during the penultimate or antepenultimate surface-faulting earthquake on the Weber segment of the Wasatch fault zone.