

APPENDIX 1: CUTTINGS AND CORE DESCRIPTIONS FOR THE DMW1 MONITORING SITE

The well cuttings were collected every 10 ft during the drilling of the borehole. These cuttings were analyzed with microscopic inspection for general lithologic features and are summarized in table A1.1. Texture was determined on all cuttings using a method developed by Folk (1954), and particle-size descriptions follow the National Research Council (1947) classification. This classification allows for the correlation of general grain-size terms (such as “sand”) with size limits determined in millimeters or inches. Color, determined on wet cuttings, follows the numerical designation in the Munsell Soil Color Charts (Munsell Color, 1975).

The cores were obtained with a wire-line coring system that pushed a core barrel through the sediments ahead of the drill bit and drilling pipe to cut relatively undisturbed cylinders of sediments. The wire-line system allowed coring to be performed without removing the drilling pipe. A plastic liner was placed inside the steel core barrel to receive the cylinder of sediments. Each coring retrieved a cylinder of sediment that was as much as 5 ft in length. The cores were sealed and stored until the core measurements were completed. The coring was performed selectively during the drilling with an attempt to retrieve sediments that would contain fossils for dating the sediments as well as sediments that would be representative of the water-bearing zones.

Of the 20 2.5-inch-diameter cores that were attempted, 17 cores—a total of 73.8 ft—were recovered. The whole cores were first analyzed with a multi-sensor logger for acoustic velocity, density, and magnetic susceptibility. The multi-sensor logger data are shown with the core photographs in appendix 1 (fig. A1.1). The cores were then split, photographed, described (fig. 5), and sampled for pore-water samples, mega fossils, and micro-fossils.

The multi-sensor logger data include primary-wave velocities derived from an acoustic transducer source, bulk density derived from active gamma radiation, magnetic susceptibility, and an estimated acoustic impedance. These data provide a baseline for integration with other onshore and offshore geophysical data and provide basic estimates that will be needed by future geologic and hydrologic studies of the deep-aquifer system. These data are summarized for each core with the core photo in the following set of figures (fig. A1.1).

The multi-sensor logger data indicate that the velocities vary with clay content: velocities were on the order of 1.6 km/s (kilometer per second) in the clay-rich intervals (for example, cores 1 and 7) and 1.9 km/s for the compacted coarse sands (for example, cores 1, 15, and 18) (fig. A1.1). The discontinuities in the velocity data are caused by regions where the transducers were not in contact with the core material. Densities range from 1.7 to 2.2 g/cm³ (gram per cubic centimeter) for the shallower sediments of core 1 (822–824.5 ft bls) and 2.5 g/cm³ for the deepest core, core 19 (1,992–1,997 ft bls). The magnetic susceptibility is generally correlated with the ferromagnetic material that is concentrated in the silt-sized material. The acoustic impedances, which are the product of the density and the acoustic velocity, average about 3.57 km-g/s-cm³ (kilometers-grams per second-centimeter cubed). These values show limited variation ranging from 2.01 km-g/s-cm³ (core 16) to 4.09 km-g/s-cm³ (core 15).

Table A1.1. Lithologic log for deep-aquifer system monitoring-well site DMW1, 14S/1E-24L2-5

[Altitude of land surface, approximately 55.6 ft. Depth is in feet below land surface. Soil and rock color notation from Munsell Color (1975). Drilled by U.S. Geological Survey Western Region Research Drilling Unit, using mud-rotary, April–May 2000. Total depth drilled: 2,012 ft. Screened intervals: 930–950; 1,040–1,060; 1,410–1,430; 1,820–1,860 ft]

Depth (ft)		Description
From	To	
0	60	Quartz sand, mainly coarse to fine quartz sand; well sorted; subrounded to well-rounded; pale yellow (5Y 7/3)
60	70	Quartz sand, mainly very coarse to fine quartz sand; well sorted; subrounded to well-rounded; pale yellow (5Y 7/3)
70	80	Slightly gravelly quartz sand, mainly very coarse to fine quartz sand with some minor quartz granules; moderately sorted; subrounded to rounded; pale yellow (2.5Y 7/3)
80	90	Gravelly quartz sand, mainly very coarse to very fine quartz sand with some quartz granules; moderately sorted; subangular to rounded; pale yellow (5Y 7/4)
90	110	Gravelly silty quartz sand, mainly very coarse to very fine quartz sand with some granule to small pebble-sized quartz gravel and minor silt; poorly sorted; subrounded to rounded; light olive gray (5Y 6/2)
110	120	Gravelly silty quartz sand, mainly very coarse to very fine quartz sand with some granule to small pebble-sized quartz gravel and silt; poorly sorted; subrounded to rounded; light olive gray (5Y 6/2)
120	130	Silty sandy gravel, mainly granular to large pebble-sized gravel; very coarse to very fine sand and some silt; poorly sorted; angular to subrounded; olive gray (5Y 5/2)
130	140	Sandy silt, silt with very coarse to very fine sand; well sorted; subangular to subrounded; pale olive (5Y 6/3)
140	150	Gravelly silty quartz sand, very coarse to very fine quartz sand with minor granule-sized gravel and some minor silt; moderately sorted; angular to subrounded; olive (5Y 5/3)
150	160	Slightly gravelly silty quartz sand, very coarse to very fine quartz sand, slightly granular with some silt; moderately sorted; angular to subrounded olive (5Y 5/3)
160	170	Silty sand, slightly coarse to very fine sand with some silt; well sorted; subrounded to well-rounded; olive (5Y 5/3)
170	180	Clayey sand silt, silt with some clay and fine to very fine sand; well sorted; subangular to subrounded; olive (5Y 5/3)
180	190	Gravelly silty sand, very coarse to fine quartz sand with granular to large pebble-sized quartz gravel and silt; moderately sorted; subangular to rounded; olive (5Y 5/3)
190	200	Silty sandy gravel, granular to medium pebble-sized gravel, very coarse to very fine and some minor silty poorly sorted; angular to subrounded; pale olive (5Y 5/2)
200	220	Silty sandy gravel, granular to medium pebble-sized gravel with very coarse to very fine sand with some minor silt; poorly sorted; subangular to rounded; olive gray (5Y 5/2)
220	230	Gravelly clayey sand, very coarse to fine sand with minor granule to medium pebble-sized gravel and clay; poorly sorted; subangular to rounded; pale olive (5Y 6/3)
230	240	Slightly gravelly sandy silty clay, clay with minor granule to medium pebble-sized gravel, coarse to very fine sand and silt; poorly sorted; subangular to subrounded; olive (5Y 5/3)
240	250	Slightly gravelly sandy silty clay, clay with minor granule to small pebble-sized gravel, very coarse to very fine sand and silt; poorly sorted; subrounded; olive gray (5Y 5/2) to olive (5Y 5/3)
250	260	Sandy clayey silt, silt with coarse to very fine sand and some clay; moderately sorted; subrounded to rounded; olive gray (5Y 5/2)
260	280	Gravelly silty sand, very coarse to very fine sand with some granule to medium pebble-sized gravel and silt; poorly sorted; angular to subrounded; olive gray (5Y 5/2) to olive (5Y 5/3)
280	290	Silty sand, very coarse to very fine sand with some silt; well sorted; angular to subrounded; pale olive (5Y 6/3)
290	300	Slightly gravelly silty sand, very coarse to very fine sand with some silt; moderately sorted; angular to subrounded; light yellowish brown (2.5Y 6/3)
300	310	Gravelly sand, very coarse to fine sand with some granule to medium pebble-sized gravel; poorly sorted; angular to subrounded; light yellowish brown (2.5Y 6/3)
310	320	Gravelly silty sand, very coarse to very fine sand with granules to medium pebble-sized gravel and silt; moderately sorted; subangular to subrounded; light brownish gray (2.5Y 6/2)

Table A1.1. Lithologic log for deep-aquifer system monitoring-well site DMW1, 14S/1E-24L2-5—Continued

Depth (ft)		Description
From	To	
320	325	Sandy silty clay, clay with some coarse to medium sand and silt; well sorted; subangular to subrounded; olive (5Y 5/3)
325	340	Sandy silty clay, clay with some very coarse to medium sand and silt; well sorted; subangular to subrounded; olive (5Y 5/3)
340	350	Sandy clayey silt, silt with some coarse to medium sand and clay; well sorted; subrounded; light olive brown (2.5Y 5/3)
350	370	Sandy clayey silt, silt with coarse to fine sand and clay; well sorted; subrounded; light olive brown (2.5Y 5/4)
370	380	Clayey silty sand, very coarse to fine sand with silt and clay matrix; well sorted; subangular to rounded; light yellowish brown (2.5Y 6/3)
380	390	Gravelly silty sand, very coarse to fine sand with minor granule to small pebble-sized gravel and silt; moderately sorted; subangular to rounded; light olive gray (5Y 6/2)
390	400	Slightly gravelly silty sand, very coarse to medium sand with minor granule to small pebble-sized gravel and silt; well sorted; subrounded to rounded; light yellowish brown (2.5Y 6/3)
400	410	Slightly gravelly silty sand, very coarse to medium sand with minor granule to small pebble-sized gravel and silt; well sorted; subangular to rounded; light yellowish brown (2.5Y 6/3)
410	420	Slightly gravelly silty sand, very coarse to fine sand with minor granule to small pebble-sized gravel and silt; moderately sorted; angular to subrounded; light yellowish brown (2.5Y 5/3)
420	430	Slightly gravelly silty sand, very coarse to very fine sand with minor granule to small pebble-sized gravel with silt, and some organic material (plant/wood); moderately sorted; subangular to rounded; light olive brown (2.5Y 5/3)
430	440	Silty sand, very coarse to fine sand with silt; well sorted; angular to rounded; light olive brown (2.5Y 5/3)
440	460	Silty sand, coarse to very fine sand with silt; well sorted; subangular to rounded; olive brown (2.5Y 4/3)
460	470	Clayey silty sand, very coarse to very fine sand with a silt and clay matrix; well sorted; subangular to rounded; light olive brown (2.5Y 5/3)
470	480	Silty sand, medium to very fine sand and silt; well sorted; subangular to rounded; light olive brown (2.5Y 5/3)
480	490	Silty sand, coarse to very fine sand and silt; well sorted; subangular to subrounded; olive brown (2.5Y 4/3)
490	500	Clayey silty sand, medium to very fine sand with silt and some minor clay; well sorted; subangular to subrounded; light olive brown (2.5Y 5/3)
500	510	Gravelly silty quartz sand, very coarse to fine quartz sand with minor silt and some granules to medium pebble-sized gravel; well sorted; angular to subrounded; grayish brown (2.5Y 5/2)
510	520	Silty quartz sand, very coarse to fine quartz sand with minor silt; well sorted; rounded to well rounded; olive gray (5Y 5/2)
520	530	Silty sand, fine to very fine sand with silt; well sorted; subangular to rounded; light olive brown (2.5Y 5/3)
530	540	Silty sand, coarse to very fine sand with silt; well sorted; subangular to rounded; olive brown (2.5Y 4/3)
540	550	Clayey silty sand, fine to very fine sand with silt and minor clay; well sorted; subrounded to rounded; brown (7.5YR 4/4)
550	560	Silty sand, fine to very fine sand with silt; well sorted; subangular to rounded; brown (7.5YR 4/4)
560	570	Gravelly silty sand, very coarse to very fine sand, slightly granular with silt; moderately sorted; rounded to well rounded; light olive brown (2.5Y 5/3)
570	580	Gravelly silty sand, very coarse to very fine sand with granule to small pebble-sized gravel with silt; moderately sorted; well rounded; light olive brown (2.5Y 5/3)
580	590	Silty sand, very coarse to very fine sand with silt; moderately sorted; subrounded to rounded; light yellowish brown (2.5Y 6/3)
590	600	Gravelly silty sand, very coarse to minor very fine sand, granular with some minor silt; very well-sorted; rounded to well-rounded; light olive brown (2.5Y 5/3)
600	610	Gravelly silty sand, medium to very fine sand, granular with silt; moderately sorted; subrounded to rounded; light olive brown (2.5Y 5/3)

Table A1.1. Lithologic log for deep-aquifer system monitoring-well site DMW1, 14S/1E-24L2-5—Continued

Depth (ft)		Description
From	To	
610	620	Gravelly silty sand, very coarse to very fine sand, slightly granular with some silt; moderately sorted; subrounded to rounded; light yellowish brown (2.5Y 6/3)
620	630	Gravelly silty sand, very coarse to very fine sand, occasional granule to medium pebble-sized gravel with silt; moderately sorted; subrounded to rounded; light olive brown (2.5Y 5/3)
630	640	Silty sand, medium to very fine sand with silt; very well sorted; subrounded to well-rounded; olive brown (2.5Y 4/3)
640	650	Silty sand, coarse to very fine sand with silt; well sorted; subrounded to rounded; light olive brown (2.5Y 5/3)
650	660	Gravelly silty sand, very coarse to fine sand with occasional granules and some silt; well sorted; rounded to well-rounded; light olive brown (2.5Y 5/3)
660	670	Gravelly silty sand, very coarse to fine sand with occasional granules and some silt; well sorted; rounded to well-rounded; light olive brown (2.5Y 5/3)
670	680	Gravelly silty sand, very coarse to medium sand with granules to medium pebble-sized gravel with silt; moderately sorted; subangular to rounded; light olive brown (2.5Y 5/3)
680	690	Gravelly silty sand, very coarse to fine sand with granules to medium pebble-sized gravel and minor silt; moderately sorted; subangular to rounded; light olive brown (2.5Y 5/4)
690	700	Slightly gravelly sand, very coarse to fine sand, occasionally granular; well sorted; subrounded to rounded; light olive brown (2.5Y 5/3)
700	710	Sandy silty clay, clay with some silt and very coarse to medium sand; moderately sorted; subangular to subrounded; light olive brown (2.5Y 5/4)
710	720	Sandy silty clay, clay with some silt and very coarse to medium sand; moderately sorted; subangular to rounded; light olive brown (2.5Y 5/4)
720	730	Sandy silty clay, clay with some silt and medium to very fine sand; well sorted; subrounded to rounded; light olive brown (2.5Y 5/4)
730	740	Sandy silty clay, clay with some silt and fine to very fine sand; well sorted; subangular to subrounded; light olive brown (2.5Y 5/3)
740	750	Sandy silty clay, clay with silt and some fine to very fine sand; well sorted; subangular to subrounded; grayish brown (2.5Y 5/2)
750	760	Sandy silty clay, clay with abundant silt and some very fine sand; well sorted; subangular to subrounded; olive gray (5Y 5/2)
760	770	Sandy silty clay, clay with abundant silt and some fine to very fine sand; well sorted; subangular to subrounded; olive gray (5Y 4/2)
770	780	Sandy silty clay, clay with abundant silt and some fine to very fine sand; well sorted; subangular to subrounded; olive (5Y 5/3)
780	790	Sandy silty clay, clay with silt and very coarse to very fine sand; moderately sorted; subangular to subrounded; olive (5Y 5/3)
790	800	Sandy silty clay, clay with silt and very coarse to very fine sand; moderately sorted; subangular; olive (5Y 5/3)
800	810	Silty clay, clay with some silt; well sorted; subangular to subrounded; pale olive (5Y 6/3)
810	820	Sandy silty clay, clay with silt and medium to very fine sand; moderately sorted; subangular to subrounded; olive (5Y 5/3)
Core 1 (822–825)		
820	830	Sandy silty clay, clay with silt and medium to very fine sand, grains mainly quartz with <1% mica (biotite); moderately sorted; subangular to subrounded; olive (5Y 5/3)
830	840	Sandy silty clay, clay with silt and medium to very fine sand; moderately sorted; subangular to subrounded; olive (5Y 5/3); accessory: chips contain clay, silt and fine to very fine sand [mainly quartz sand with <1% mica (biotite)]
840	850	Sandy silty clay, clay with silt and coarse to very fine sand; moderately sorted; subangular to well rounded; olive (5Y 5/3); accessory: chips contain clay, silt and medium to very fine sand [mainly quartz sand with <1% mica (biotite)]

Table A1.1. Lithologic log for deep-aquifer system monitoring-well site DMW1, 14S/1E-24L2-5—Continued

Depth (ft)		Description
From	To	
850	860	Sandy silty clay with silt and medium to very fine sand; moderately sorted; subangular to subrounded; olive (5Y 5/3); accessory: chips contain clay, silt and fine to very fine sand [mainly quartz sand with <1% mica (biotite)]
860	870	Sandy silty clay, clay with silt and medium to very fine sand; well sorted; subangular to subrounded; olive (5Y 5/3); grains mainly quartz with <1% mica (biotite)
870	880	Sandy silty clay, clay with silt and very coarse to very fine sand; moderately sorted; subangular to subrounded; olive (5Y 5/3); grains mainly quartz with >1% mica (biotite)
880	890	Sandy silty clay, clay with silt and very coarse to very fine sand; moderately sorted; subangular to subrounded; light yellowish brown (2.5Y 6/3); grains mainly quartz with <1% mica (biotite)
890	895	Sandy silty clay, clay with silt and very coarse to very fine sand, moderately sorted; subangular to subrounded; olive gray (2.5Y 6/3); accessory chips contain clay, silt and coarse to very fine sand, grains mainly quartz with <1% mica (biotite); olive gray (5Y 5/2)
895	900	Sandy silty clay, clay with silt and very coarse to very fine sand; moderately sorted; subangular to subrounded; pale olive (5Y 6/3); accessory chips contain clay, silt and medium to very fine sand, grains mainly quartz with <1% mica (biotite); olive gray (5Y 8/2)
900	905	Slightly gravelly sandy silty clay, clay with silt, very coarse to very fine sand and slightly granular; moderately sorted; subangular to subrounded; olive gray (5Y 5/2); grains mainly quartz with <1% mica (biotite)
905	910	Sandy silty clay, clay with silt and very coarse to very fine sand; moderately sorted; subangular to subrounded; light yellowish brown (2.5Y 6/3); grains mainly quartz
910	915	Sandy silty clay, clay with silt and very coarse to very fine sand; moderately sorted; subangular to subrounded; light yellowish brown (2.5Y 6/3); grains mainly quartz with <1% mica
915	920	Sandy silty clay, clay with silt and very coarse to very fine sand; moderately sorted; subangular to rounded; pale olive (5Y 6/3); grains mainly quartz
Core 2 (922–927), Core 3 (927–932), Core 4 (932–937), Core 5 (937–942)		
920	945	Clayey silty quartz sand, coarse to very fine sand with some silt and clay; well sorted; subangular to rounded; light olive brown (2.5Y 5/3)
945	950	Clayey silty quartz sand, very coarse to very fine quartz sand with some silt and clay; well sorted; subrounded to well rounded; light olive brown (2.5Y 5/3)
950	955	Clayey silty quartz sand, very coarse to very fine quartz sand with some silt and minor clay; well sorted; subrounded to well rounded; light olive brown (2.5Y 5/3)
955	960	Clayey silty quartz sand, very coarse to very fine quartz sand with silt and clay; well sorted; subangular to rounded; olive gray (5Y 5/2); accessory: grains <1% mica (biotite)
960	965	Clayey silty quartz sand, very coarse to very fine sand with silt and clay; well sorted; subangular to subrounded; olive gray (5Y 5/2); accessory: grains <1% mica (biotite)
965	970	Sandy silty clay, clay with silt and some medium to very fine quartz sand; well sorted; subangular to subrounded; dark gray (5Y 4/1)
970	975	Sandy clayey silt, silt with clay and some medium to very fine quartz sand; well sorted; subangular to rounded; dark gray (5Y 4/1)
975	980	Sandy silty clay, clay with abundant silt and fine to very fine quartz sand; well sorted; subangular to subrounded; dark gray (5Y 4/1)
980	985	Sandy clayey silt, silt with some clay and coarse to very fine sand; moderately sorted; subangular to subrounded; dark gray (5Y 4/1)
985	990	Sandy silty clay, clay with abundant silt and fine to very fine quartz sand; well sorted; subangular; dark gray (5Y 4/1)
990	995	Sandy clayey silt, silt with clay and coarse to very fine quartz sand; well sorted; subangular to rounded; dark gray (5Y 4/1)
995	1,000	Sandy silty clay, clay with silt and coarse to very fine sand; moderately sorted; subangular to subrounded; dark gray (5Y 4/1); grains mainly quartz with <1% mica (biotite)
1,000	1,005	Sandy silty clay, clay with silt and coarse to very fine sand; moderately sorted; subangular to subrounded; dark gray (5Y 4/1)

Table A1.1. Lithologic log for deep-aquifer system monitoring-well site DMW1, 14S/1E-24L2-5—Continued

Depth (ft)		Description
From	To	
1,005	1,010	Sandy silty clay, clay with silt and medium to very fine quartz sand; well sorted; subangular to rounded; dark gray (5Y 4/1); accessory: some small shell fragments
1,010	1,015	Sandy silty clay, clay with abundant silt and medium to very fine quartz sand; well sorted; subangular to subrounded; dark gray (5Y 4/1); accessory: small shell fragment and <1% mica (biotite?)
1,015	1,020	Sandy clayey silt, silt with some clay and fine to very fine quartz sand; well sorted; subangular to rounded; dark gray (5Y 4/1); accessory: ~1% mica (biotite)
1,020	1,025	Sandy clayey silt, silt with some clay and medium to very fine quartz sand; moderately sorted; subangular to rounded; dark gray (5Y 4/1); accessory: granule size shell and wood fragments and <1% mica (biotite)
1,025	1,030	Sandy clayey silt, silt with some clay and medium to very fine quartz sand; moderately sorted; subangular to rounded; olive gray (5Y 4/2); accessory: granule-sized shell and wood fragments and <1% mica (biotite)
1,030	1,035	Sandy clayey silt with some clay and very coarse to very fine quartz sand; moderately sorted; subangular to rounded; dark gray (5Y 4/1)
1,035	1,040	Clayey sandy silt, silt with some clay and very coarse to very fine quartz sand; moderately sorted; subangular to rounded; dark gray (5Y 4/1)
Core 6 (1,042–1,047)		
1,040	1,050	Clayey silty sand, very coarse to very fine sand with some clay and silt; moderately sorted; subangular to subrounded; light olive brown (2.5Y 5/3); accessory: <1% mica (biotite)
1,050	1,055	Clayey silty sand, very coarse to very fine sand with some clay and silt; moderately sorted; subangular to subrounded; grayish brown (2.5Y 5/2)
1,055	1,060	Clayey silty sand, coarse to very fine sand with some clay and silt; moderately sorted; subangular to subrounded; olive gray (5Y 4/2); accessory: <1% mica
1,060	1,065	Sandy clayey silt, silt with clay and very coarse to very sand; moderately sorted; subangular to rounded; olive gray (5Y 5/2); accessory: <1% mica
1,065	1,070	Sandy clayey silt, silt with clay and coarse to very fine sand; well sorted; subangular to subrounded; olive gray (5Y 4/2); accessory: <1% mica
1,070	1,075	Clayey silty sand, medium to very fine sand with silt and clay; well sorted; subangular to subrounded; grayish brown (2.5Y 5.2); accessory: <1% mica; silty clay chips; dark greenish gray (10GY 4/1)
1,075	1,080	Clayey silty sand, fine to very fine sand with some clay and silt; well sorted; subangular to subrounded; dark gray (5Y 4/1)
1,080	1,085	Clayey silty sand, fine to very fine sand with some clay and silt; well sorted; subangular to subrounded; dark gray (5Y 4/1)
1,085	1,090	Clayey silty sand, very coarse to very fine sand with clay and silt; moderately sorted; subangular to subrounded; dark gray (5Y 4/1); accessory: some granule to small pebble-sized shell fragments and <1% mica
1,090	1,095	Clayey silty sand, medium to very fine sand with clay and silt; well sorted; subangular to subrounded; dark gray (5Y 4/1)
1,095	1,100	Clayey silty sand, coarse to very fine sand with clay and silt; well sorted; subangular to subrounded; dark gray (5Y 4/1)
Core 7 (1,102–1,107)		
1,100	1,110	Clayey sandy silt, silt with clay and medium to very fine sand; well sorted; subangular to subrounded; dark gray (5Y 4/1); accessory: granule to small pebble-sized shell fragments
1,110	1,115	Sandy clayey silt, silt with clay and medium to very fine sand; well sorted; subangular to subrounded; dark gray (5Y 4/1)
1,115	1,120	Sandy clayey silt, silt with clay and fine to very fine sand; well sorted; subangular to subrounded; dark gray (5Y 4/1); accessory: ~1% mica (biotite)
1,120	1,125	Sandy silty clay, clay with silt and very coarse to very fine sand; moderately sorted; subangular to subrounded; dark gray (5Y 4/1); accessory: small organic material (wood?) and <1% mica
1,125	1,130	Sandy silt clay, clay with silt and medium to very fine sand; well sorted; subangular to subrounded; dark gray (5Y 4/1)

Table A1.1. Lithologic log for deep-aquifer system monitoring-well site DMW1, 14S/1E-24L2-5—Continued

Depth (ft)		Description
From	To	
1,130	1,135	Sandy silty clay, clay with silt and fine to very fine sand; well sorted; subangular to rounded; dark gray (5Y 4/1); accessory: <1% mica
1,135	1,140	Slightly sandy silty clay, clay with abundant silt and some very fine sand; well sorted; subangular to subrounded; dark gray (5Y 4/1); accessory: some coarse sized shell fragments and <1% mica
1,140	1,150	Sandy silty clay; clay with silt and medium to very fine sand; well sorted; subangular to rounded; dark gray (5Y 4/1); accessory: <1% (biotite)
1,150	1,155	Sandy clayey silt, silt with clay and medium to very fine sand; well sorted; subangular to subrounded; dark gray (5Y 4/1); accessory: fine shell fragments and <1% mica
1,155	1,160	Sandy clayey silt, silt with clay and medium to very fine sand; well sorted; subangular to rounded; dark gray (5Y 4/1); accessory: <1% mica (biotite)
1,160	1,165	Sandy clayey silt, silt with clay and medium to very fine sand; well sorted; subangular to subrounded; dark gray (5Y 4/1); accessory: <1% mica (biotite)
1,165	1,170	Sandy silty clay, clay with silt and coarse to very fine sand; moderately sorted; subangular to well rounded; dark gray (5Y 4/1); accessory: coarse-sized shell fragments and <1% mica
1,170	1,175	Sandy silty clay, clay with abundant silt and medium to very fine sand; well sorted; subangular to rounded; dark gray (5Y 4/1); accessory: coarse-sized shell fragments
1,175	1,180	Sandy clayey silt, silt with some clay and medium to very fine sand; well sorted; subangular to subrounded; dark gray (10Y 4/1); accessory: <1% mica
1,180	1,185	Sandy clayey silt, silt with abundant clay and fine to very fine sand; well sorted; subangular to subrounded; dark greenish gray (10Y 4/1); accessory: <1% mica
1,185	1,190	Slightly sandy silty clay, clay with silt and minor very fine sand; very well-sorted; subangular to subrounded; dark greenish gray (10Y 4/1)
1,190	1,195	Slightly sandy silty clay, clay with silt and minor very coarse to very fine sand; moderately sorted; subangular to subrounded; dark greenish gray (10Y 4/1)
1,195	1,205	Slightly sandy silty clay, clay with minor silt and minor fine to very fine sand; very well-sorted; subangular; dark greenish gray (10Y 4/1); accessory: <1% mica
1,205	1,217	Slightly silty sand, mainly fine to very fine quartz sand with some very minor silt; well sorted; angular to well rounded; dark olive gray (5Y 3/2); accessory grains include: biotite and feldspar
Core 8 (1,212–1,217), Core 9 Shoe Sample only (1,217)		
1,217	1,220	Sandy clayey silt, silt with some clay and very fine sand; well sorted; subangular to subrounded; dark gray (5Y 4/1)
1,220	1,225	Sandy silt, silt with fine to very fine sand; well sorted; subangular to subrounded; dark greenish gray (10Y 4/1)
1,225	1,230	Clayey sandy silt, silt with some clay and fine very fine sand; well sorted; subangular; dark gray (5Y 4/1); <1% mica (biotite)
1,230	1,235	Sandy clayey silt, silt with clay and fine to very fine sand; well sorted; subangular to subrounded; dark gray (5Y 4/1)
1,235	1,240	Sandy clayey silt, silt with clay and fine to very fine sand; well sorted; subangular to subrounded; dark gray (5Y 4/1)
1,240	1,245	Sandy clayey silt, silt with clay and fine to very fine sand; well sorted; subangular to subrounded; dark gray (5Y 4/1)
1,245	1,250	Sandy clayey silt, silt with clay and fine to very fine sand; well sorted; subangular to subrounded; olive gray (5Y 4/2)
1,250	1,255	Sandy clayey silt, silt with clay and fine to very fine sand; well sorted; subangular to subrounded; dark gray (5Y 4/1)
Core 10 (1,262–1,267)		
1,255	1,267	Sandy clayey silt, silt with clay and fine to very fine sand; well sorted; subangular to subrounded; dark gray (5Y 4/1)

Table A1.1. Lithologic log for deep-aquifer system monitoring-well site DMW1, 14S/1E-24L2-5—Continued

Depth (ft)		Description
From	To	
Core 11 (1,267–1,272)		
1,267	1,272	Sand, fine to very fine sand; mostly quartz; well sorted; subangular to well rounded; dark greenish gray (10Y 4/1)
Core 12 (1,272–1,277)		
1,272	1,275	Clayey sandy silt, silt with some clay and medium to very fine sand; well sorted; subangular to subrounded; olive (5Y 4/3); accessory: small pebble-sized shell fragments
1,275	1,280	Clayey silty sand, medium to very fine sand with clay and abundant silt; well sorted; subangular to rounded; olive gray (5Y 4/2); accessory: medium pebble-sized shell fragments
1,280	1,285	Sandy silty clay, clay with abundant silt and coarse to very fine sand; moderately sorted; subangular to rounded; dark gray (5Y 4/1)
1,285	1,290	Sandy silty clay, clay with abundant silt and medium to very fine sand; well sorted; subangular to rounded; dark greenish gray (10Y 4/1); accessory: medium sand-sized shell fragments
1,290	1,295	Sandy silty clay, clay with abundant silt and fine to very fine sand; well sorted; subrounded to rounded; dark greenish gray (10Y 4/1)
1,295	1,300	Slightly sandy silty clay, clay with silt and minor fine to very fine sand; well sorted; subangular to subrounded; dark greenish gray (10Y 4/1); accessory: <1% mica
1,300	1,305	Slightly sandy silty clay, clay with abundant silt and minor fine to very fine sand; well sorted; subangular to subrounded; dark greenish gray (10Y 4/1)
1,305	1,310	Sandy silty clay, clay with abundant silt and fine to very fine sand; well sorted; subangular to subrounded; dark greenish gray (10Y 4/1); accessory: very coarse sand-sized shell fragments
Core 13 (1,312–1,317), Core 14 (1,317–1,322)		
1,310	1,325	Clayey sandy silt, silt with some clay and medium to very fine sand; well sorted; subangular to subrounded; dark greenish gray (10Y 4/1)
1,325	1,330	Clayey sandy silt, silt with some clay and medium to very fine sand; well sorted; subangular to well rounded; dark olive gray (5Y 3/2)
1,330	1,335	Clayey silty sand, medium to very fine sand with abundant silt and some clay; well sorted; subangular to rounded; olive (5Y 4/3); accessory: some small pebble-sized shell fragments
1,335	1,340	Clayey silty sand; medium to very fine sand with abundant silt and some clay; well sorted; subangular to subrounded; olive gray (5Y 4/2)
1,340	1,345	Sandy silt, silt with medium to very fine sand; well sorted; subangular to rounded; dark olive gray (5Y 3/2)
1,345	1,350	Silty sand, very coarse to very fine sand with silt; moderately sorted; subangular to well rounded; dark olive gray (5Y 3/2)
1,350	1,355	Gravelly silty sand, very coarse to very fine sand with abundant silt and minor granule to small pebble-sized gravel; moderately sorted; subangular to well rounded; dark greenish gray (10Y 4/1)
1,355	1,360	Gravelly silty sand, very coarse to very fine sand with granule to small pebble-sized gravel and silt; poorly sorted; subangular to rounded; olive gray (5Y 4/2)
1,360	1,365	Sandy clayey silt, silt with clay and fine to very fine sand; well sorted; subangular to subrounded; dark gray (5Y 4/1)
1,365	1,370	Sandy clayey silt, silt with clay and medium to very fine sand; well sorted; subangular to subrounded; dark gray (5Y 4/1); accessory: some coarse sand-sized shell fragments
1,370	1,375	Sandy clayey silt, silt with clay and very fine sand; well sorted; subangular to subrounded; dark olive gray (5Y 3/2); accessory: <1% mica (biotite)
1,375	1,385	Clayey sandy silt, silt with medium to very fine sand and some clay; well sorted; subangular to rounded; dark gray (5Y 4/1); accessory: <1% (biotite)
1,385	1,390	Sandy clayey silt, silt with clay and some medium to very fine sand; well sorted; subangular; dark olive gray (5Y 3/2)
1,390	1,400	Sandy clayey silt, silt with clay and very coarse to very fine sand; poorly sorted; subangular to subrounded; dark olive gray (5Y 3/2)

Table A1.1. Lithologic log for deep-aquifer system monitoring-well site DMW1, 14S/1E-24L2-5—Continued

Depth (ft)		Description
From	To	
1,400	1,410	Sandy clayey silt, silt with clay and very coarse to very fine sand; poorly sorted; angular to subrounded; dark greenish gray (10Y 4/1); accessory: some coarse sand-sized shell fragments and <1% mica
1,410	1,420	Gravelly sandy clayey silt, very coarse to very fine sand and some granule to small pebble-sized gravel; poorly sorted; subangular to subrounded; dark greenish gray (10Y 4.1); accessory: some very coarse sand-sized shell fragments
1,420	1,430	Clayey silty sand, very coarse to very fine sand with silt and clay; poorly sorted; subangular to rounded; olive gray (5Y 5/2); accessory: very coarse sand-sized shell fragments and some organic plant material
1,430	1,440	Clayey silty sand, very coarse to very fine sand with silt and clay; poorly sorted; subangular to well rounded; dark greenish gray (10Y 4/1); accessory: some organic plant material
1,440	1,450	Clayey silty sand; very coarse to very fine sand with silt and clay; poorly sorted; subangular to rounded; olive (5Y 4/3)
1,450	1,460	Clayey silty sand, very coarse to very fine sand with silt and clay; poorly sorted; subangular to well rounded; olive gray (5Y 4/2)
1,460	1,470	Sandy clayey silt, silt with clay and very coarse to very fine sand; poorly sorted; subangular to rounded; olive gray (5Y 5/2)
1,470	1,480	Sandy silty clay, clay with silt and very coarse to very fine sand; poorly sorted; subangular to well rounded; olive gray (5Y 5/2)
1,480	1,490	Gravelly sandy clayey silt, silt with clay, very coarse to very fine sand and slightly granular; poorly sorted; subangular to well rounded; dark gray (5Y 4/1)
1,490	1,520	Silty sand, medium to very fine sand with silt; moderately sorted; subangular to subrounded; dark gray (5Y 4/1)
1,520	1,540	Sandy silt, silt with fine to very fine sand; well sorted; subangular to subrounded; dark gray (5Y 4/1)
1,540	1,560	Sandy silt, silt with fine to very fine sand; well sorted; subangular to rounded; dark gray (5Y 4/1); accessory: <1% mica
1,560	1,580	Sandy silt, silt with medium to very fine sand; well sorted; subangular to rounded; dark greenish gray (10Y 4/1); accessory: ~1% mica (biotite) and some medium sand-sized calcite crystal
1,580	1,600	Sandy silt, silt with medium to very fine sand; well sorted; subangular to subrounded; dark greenish gray (10Y 4/1); accessory: ~1% mica and some medium sand-sized calcite crystals
1,600	1,620	Clayey silt, silt with clay; well sorted; subangular to subrounded; dark greenish gray (5Y 4/1)
1,620	1,640	Sandy silt clay, clay with silt and minor fine to very fine sand; well sorted; angular to subrounded; dark greenish gray (10Y 4/1); accessory: <1% mica
1,640	1,660	Silty clay, clay with silt; well sorted; subangular to subrounded; dark greenish gray (10Y 4/1); accessory: <1% mica and some calcite crystals (possibly have grown since sample was taken)
1,660	1,680	Silty clay, clay with silt; well sorted; subangular to subrounded; dark greenish gray (10Y 4/1); accessory: same calcite crystals have formed
1,680	1,700	Sandy silty clay, clay with silt and very coarse to very fine sand; poorly sorted; subangular to rounded; olive gray (5Y 4/2); accessory: same calcite crystals have formed
Core 15 (1,717–1,722)		
1,700	1,722	Quartz sand, coarse to very fine quartz sand; moderately sorted; subangular to subrounded; greenish gray (10Y 5/1)
Core 16 (1,722–1,727)		
1,722	1,727	Silty quartz sand, coarse to very fine quartz sand with silt; moderately sorted; subangular to rounded; greenish gray (10Y 5/1)
Core 17 Shoe Sample only (1,727)		
1,727	1,732	Silty quartz sand; fine to very fine quartz sand with silt; well sorted; angular to subrounded; greenish gray (5GY 6/1)
Core 18 (1,732–1,737)		
1,732	1,737	Silty quartz sand, fine to very fine quartz sand with silt; well sorted; angular to subrounded; greenish gray (5GY 6/1)

Table A1.1. Lithologic log for deep-aquifer system monitoring-well site DMW1, 14S/1E-24L2-5—Continued

Depth (ft)		Description
From	To	
1,737	1,750	Slightly gravelly silty sand, mainly fine to very fine quartz sand with silt, slightly granular; poorly sorted; angular to well rounded; greenish gray (10Y 6/1)
1,750	1,760	Gravelly silty sand, mainly very coarse to very fine quartz sand with silt and granule to small pebble-sized gravel; poorly sorted; angular to well rounded; greenish gray (10Y 5/1)
1,760	1,790	Sandy silty clay, clay with silt and very coarse to very fine sand; poorly sorted; subangular to subrounded; dark greenish gray (10Y 4/1); accessory: calcite crystals have formed
1,790	1,800	Silty clay, clay with silt; well sorted; subangular; dark greenish gray (10Y 3/1)
1,800	1,810	Slightly sandy silty clay, clay with silt and minor coarse to very fine sand; moderately sorted; subangular to rounded; dark greenish gray (10Y 3/1); accessory: calcite has formed
1,810	1,820	Silty sand, very coarse to very fine sand with silt; moderately sorted; subangular to rounded; olive (5Y 4/3)
1,820	1,830	Silty sand, very coarse to fine sand with silt; well sorted; rounded to well rounded; greenish gray (10Y 5/1)
1,830	1,860	Clayey sandy silt, silt with very coarse to very fine sand and some clay; poorly sorted; subangular to rounded; dark greenish gray (10Y 4/1)
1,860	1,870	Clayey sandy silt, silt with very coarse to very fine sand and some clay; poorly sorted; subangular to rounded; dark greenish gray (10Y 4/1)
1,870	1,880	Clayey sandy silt, silt with medium to very fine sand and some clay; moderately sorted; subangular; olive gray (5Y 4/2); accessory: <1% mica (biotite)
1,880	1,890	Clayey sandy silt; silt with very coarse to very fine sand and some small chips of clay; poorly sorted; subangular to subrounded; olive gray (5Y 4/2)
1,890	1,900	Sandy clayey silt, silt with clay and some fine to very fine sand; moderately sorted; subangular to subrounded; dark gray (5Y 4/1)
1,900	1,920	Clayey sandy silt, silt with medium to very fine sand and clay chips; moderately sorted; subangular to subrounded; olive gray (5Y 5/2); accessory: medium sand to small pebble-sized shell fragments
1,920	1,930	Sandy clayey silt, silt with clay chips and some fine to very fine sand; moderately sorted; subangular; olive gray (5Y 4/2)
1,930	1,940	Sandy silty clay, clay chips with silt and some very fine sand; well sorted; subangular to rounded; dark gray (5Y 4/1)
1,940	1,950	Slightly sandy silty clay, clay chips with silt and minor very fine sand; well sorted; subangular to subrounded; dark greenish gray (10Y 4/1); accessory: <1% mica (biotite)
1,950	1,960	Clayey sandy silt, silt with coarse to very fine sand and some clay; moderately sorted; subangular to subrounded; dark greenish gray (10Y 4/1)
1,960	1,980	Silty clay, clay with silt; well sorted; angular to subrounded; olive gray (5Y 4/2)

Core 19 (1,992–1,997)—No samples taken 1,997–2,012