Appendix B. Driller Notes for Borehole USGS 142A

Drilling Equipment

- Gefco™ SD-300 (used to ream and set casing strings at various depths)

Drilling System

Bore Diameter	Bit Type	Method	Drill Rig	Depth (feet)
12.0-inch	Tri-cone	Air rotary	SD-300	40
7.9-inch	Down-hole hammer (DHH)	Air rotary	SD-300	560

Borehole Diameter and Footage Drilled

Diameter (in.)	Top Depth (feet)	Bottom Depth (feet)
12.0	0	40
7.9	40	560

Casing Depth

Diameter (inch)	Top Depth (feet)	Bottom Depth (feet)	Slotted	Thickness (inch)
8.0	+2 (above ground level)	40	No	0.25
1.0 (measure line for water levels)	+2 (above ground level)	546	Yes (from 526 to 546 ft BLS)	0.25

Grout Seal

Material	Top (feet)	Bottom (feet)	Amount	Placement Method
Cement grout	0	40	100 gallons	Pump from surface

Daily Activity

Date (mm/dd/yyyy)	Depth (ft)	Notes of daily activity
7/27/2016	40	Setup on hole approximately 30 ft from USGS 142. Drilled 12-inch to 40 ft and set 42 ft of 8-inch casing. Sealed casing, mixed and pumped grout into annular space.
8/1/2016	162	Changed out bit to 7.9-inch. Ran down hole hammer (DHH) and drilled to 162 ft. Continuous injection of water and foam with the air. Drilling went well.
8/2/2016	390	Drilling okay, lost circulation at 250 ft, but hole stayed clean. Sullair compressor over heated at about 3pm. Weather very warm.
8/3/2016	560	Drilled okay, returns came back at 490 ft and continued to total depth. Encountered a red-sand sediment layer at 553 ft that would not stop caving so stopped drilling. Pumped drill foam to try to clean the bottom of the hole for an hour at the end of the day.
8/4/2016	547	Hole filled with red-sand to 547 ft. Removed DHH from hole due to sand causing problems.
8/8/2016	546	Set 2.8-inch rods (NQ-size) to 545 ft for logging hole.
8/9/2016	546	Ran geophysical logs through drill rods—source and gyro logs.
8/10/2016	546	Removed NQ-size rods and set 1-inch pipe to 546 ft to use as a water level measuring line. Perforated the bottom 20 ft for water level and used stainless steel in the aquifer.
8/11/2016	546	Removed equipment and poured concrete pad with brass cap at surface.