

T. 28 N. 16 Sec. 34

WELL LOCATION: Pine Bay Southeast
GEOLOGIST: Susan Erlenwein
DATE: 04/04/05
APPROXIMATE SURFACE ELEVATION: 1258 feet
WATER TABLE DEPTH: 14.5 feet
TOTAL DEPTH: 27 feet (pipe depth @ 25 feet)

TOP Feet	BASE Feet	LITHOLOGY	DESCRIPTION
0	0.5	SOIL	Soil; light black; slightly silty; vegetable matter
0.5	2	SILTY CLAY	Clay; dark gray; slightly silty
2	5	CLAY	Clay; black; dense
5	6	SAND	Silica sand; white to tan; fine grain; well rounded; well sorted
6	8	SAND	Silica sand; white to tan with hematite staining; fine grain; well rounded; well sorted
8	10	SAND & GRAVEL	Silica sand; tan to red with a few black grains; fine grain; sub to well rounded. Mixed with a few gravel pieces; red; fine grain; sub angular
10	12	SILTY SAND & GRAVEL	Silty silica sand; white to tan; fine grain; sub rounded to sub angular. Contains large, gray gravel grains; coarse grain; angular
12	13	SILTY CLAY	Clay; black; slightly silty
13	15	SAND & GRAVEL	Silica sand; white to tan with a few red grains; fine to medium grain; sub rounded. Mixed with gravel; red; coarse grain (20 mm)
15	18	SAND	Silica sand; clear to tan with some red grains; medium to coarse grain; sub rounded
18	20	SAND	Silica sand; clear to tan with some red grains; medium to coarse grain; sub rounded to sub angular
20	22	SAND & GRAVEL	Silica sand; clear to tan; medium to coarse grain; sub rounded to sub angular. Mixed with gravel; brown and dark red; fine to coarse grain (15 - 30 mm); sub angular
22	23	SAND & CLAY	Silica sand; clear, gray and red; medium to coarse grain; sub rounded to sub angular. Contains clay; gray; silty
23	25	SAND & GRAVEL & CLAY	Silica sand; clear, tan, gray and red; coarse grain; sub rounded to sub angular. Mixed with gravel; gray and red; coarse grain (25 mm); sub angular. Contains black clay nodules
25	27	CLAY & SHALE	Clay; blue gray; dense. Shale; blue gray

Table 2. Name, location, and characteristics of the monitoring wells. The screened interval for all wells is the bottom 10 ft.

Well name	USGS location and well number *	Altitude of land surface, ft	Well depth, ft below land surface	Distance from sand pit, ft
Barefoot Bay N	26S 01W 34CCDD02	1327	40	175
Barefoot Bay SE	27S 01W 03DABA01	1325	40	315
Barefoot Bay SW	24S 01W 03ACCC01	1330	42.5	168
Ridge Port N	26S 01W 28DDDD01	1333	17.5	596
Ridge Port SE	26S 01W 34CCDD01	1327	17.5	61
Ridge Port SW	26S 01W 34CCD 01	1330	19	786
Moorings Well N	26S 01W 24BBAA01	1338	46	1099
Moorings Well SE	26S 01W 25ADBA01	1331	47	530
Moorings Well SW	26S 01W 25ADCC01	1331	47.5	730
Cropland Well N	26S 01W 23BAAB01	1339	46.5	637
Cropland Well SE	26S 01W 23AACD01	1338	47.5	484
Cropland Well SW	26S 01W 23BCAA01	1337	45.3	181
Kingston Cove Well N	28S 01E 05BCDB01	1289	37.9	560
Kingston Cove Well SE	28S 01E 05CDAB01	1286	38.6	273
Kingston Cove Well SW	28S 01E 05CDBB0	1287	39	152
Pine Bay Well N	28S 01E 34BBCC01	1255	25	863
Pine Bay Well SE	28S 01E 34BDDBA01	1258	27	380
Pine Bay Well SW	28S 01E 34CAAA01	1257	30	571

* Township, Range, Section, quarter sections from largest to smallest (A = NE, B = NW, C = SW, D = SE), well number

developed, with roads occupying the rest of the shoreline. A thin band of trees extends along the shore between the shoreline and the roads. The age of development around the pit is the oldest of any of the five developed sand pits that were studied. The pit lake is used for recreation, including for motorized boats in spite of its relatively small size. Known contamination of ground water by volatile organic compounds (VOCs) from a dry cleaning operation lies about 1,500 ft to the southwest of the Kingston Cove pit (SCDER, 2005).

The other pit site (Pine Bay Estates) in southern Wichita is in a residential area. The residential lot size of Pine Bay Estates is generally larger than in the residential developments around the other pits studied. The residences use on-site septic systems (SCDER, 2005). A golf course lies along the east and northeast part of the pit and on a peninsula that extends from the east into the middle of the pit. The 52% of the shoreline developed around the pit in Pine Bay Estates is split approximately equally between the residential and golf course use. The location lies within an old saltwater plume caused by upward leaks of oil brine in an over-pressured zone used for enhanced recovery of oil. There is no recreational use of the water in the pit.

The DWR contacted the U.S. Bureau of Reclamation (USBR), which agreed to drill and install 18 monitoring wells at the six pit sites. The USBR was asked to drill one monitoring well