

7.28 N. 16 Sec. 34

WELL LOCATION: Pine Bay Southwest
GEOLOGIST: Susan Erlenwein
DATE: 04/04/05
APPROXIMATE SURFACE ELEVATION: 1257 feet
WATER TABLE DEPTH: 14.3 feet
TOTAL DEPTH: 30 feet

TOP Feet	BASE Feet	LITHOLOGY	DESCRIPTION
0	0.5	SOIL	Soil; dark brown; silty; vegetable matter
0.5	2	SILTY CLAY	Clay; dark brown; silty
2	3	CLAY	Clay; black; dense
3	6	SILTY CLAY	Clay; dark brown; silty
6	7	SILTY SAND	Silty silica sand; dark tan; fine grain; well rounded
7	9	SILTY SAND	Silty silica sand; clear to light tan; fine grain; well rounded
9	10	SILTY SAND	Silty silica sand; clear, tan and some red grains; fine grain; well rounded
10	13	SAND	Silica sand; white to tan; fine grain; well rounded; well sorted
13	14	SAND	As above with hematite staining
14	15	SAND	Silica sand; clear, tan and red; fine to medium grain; well rounded
15	18	SILTY SAND & GRAVEL	Silty silica sand; gray; very fine to coarse grain; sub to well rounded. Mixed with gravel; fine grain (15 mm); gray; sub rounded; poorly sorted
18	20	SAND & GRAVEL & CLAY	Silica sand; clear, tan and gray; fine to medium grain; sub to well rounded. Mixed with gravel; tan and gray; fine grain; sub rounded. Contains dark gray clay nodules
20	22	SAND	Silica sand; tan to gray; fine grain; well rounded; well sorted
22	24	SAND	Silica sand; clear, tan, gray and res; medium to coarse grain; sub to well rounded
24	25	SAND & GRAVEL	Silica sand; clear, tan and red; medium to coarse grain; sub rounded to sub angular. Mixed with gravel; red, yellow and brown; fine to coarse (10 to 28 mm) grain; sub angular
25	27	SAND	Silica sand; tan with some red; fine to coarse grain; sub to well rounded; poorly sorted
27	28	SAND & GRAVEL	Silica sand; clear, white, tan and red; medium to coarse grain; sub to well rounded. Mixed with gravel; red; fine grain; sub rounded
28	30	SAND & GRAVEL	Silica sand; clear, white, tan and red; medium to coarse grain; sub to well rounded. Mixed with gravel; white and red; fine grain; sub rounded to sub angular

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