

Project: Schulte Brine Contamination Site

Site Location: The site is located north and east of the city of Schulte in Sedgwick County. Legal location is E/2 of 7 Sections, all Sections 8, north half section 16 and 17, all in Township 28 South, Range 1 West.

Impact/Immediacy: The impact is to groundwater resources including public supply wells and domestic water wells. The immediacy level is rated as moderate.

Site Description: The project area consists of a groundwater plume contaminated by oilfield brine moving in an east-southeasterly direction. The apparent source for the contamination is salt-water disposal ponds that were associated with activities in the Schulte oil field and some wells in section 6. The site is situated between Wichita Mid-Continent Airport to the northeast and the unincorporated town of Schulte to the west. The land use is a combination of light industrial, agricultural and residential. The depth of the affected water wells in the area is approximately 50 feet. Well logs indicate a presence of a thick clay aquatard separating sand aquifers which rest on top of the Wellington Shale at approximately 150 ft. The aquifer consists of unconsolidated sand, clay and gravel deposits. New construction of commercial/industrial complexes have occurred directly east of the recovery wells at the site.

Unusual Problems: The construction of new structures over the possible plume down-gradient of the recovery system limits future recovery in that direction. Much of the area is for sale for future industrial expansion and could complicate continuance of the remediation of the site.

Status of Project: Remediation by the KCC began at this site on November 1, 2001. The site currently consists of 2 recovery wells, 11 monitoring wells, and one saltwater disposal well that is used to dispose of brine impacted water. The highest chloride reading this year (2010) was from MW 101 which tested at 3800 mg/l. This well is just to the south of the north recovery well. The north recovery well is only run the first week of each month due to the low chloride values which runs between 1,000 and 1,050 mg/l when ran continuously. Water analysis from the east recovery well has an average chloride value of 1,600 mg/l and is run continuously. The total amount of brine impacted water pumped and disposed of from the site in 2010 was 13,082,800 gallons, or 311,495 barrels.

Due to the housing development to the south of the site especially at the location of MW-13, the developer asked to plug it as the well was in the future back-yard of a lot. KCC agreed terms of replacing this well with another well placed near-by with costs of the plugging MW-13 and install of the new well burdened solely by the developer. MW-15 was installed and added to the sites monitoring well matrix on 10/24/2010. That same day MW-13 was plugged. The sub-contractor hired by the developer to perform the install work under KCC supervision was Harp Well Service of Wichita, Kansas.

There is a residential neighborhood directly down-gradient from the plume that uses groundwater supply for their sole source of water. MW-301 which is located just on the other side of Tyler Road from the closest homes showed chloride levels of 250 ppm this year.

Level of Remediation Sought:

Ideal: 250 mg/l Chloride

Target: 500 mg/l Chloride

Recommendations for Future Work: Serious investigation should be done regarding the type and construction of the domestic wells located at Tyler and K-42, near the toe of the Chloride plume. Chlorides could move into those wells in the near future. Continuance of the remediation system should also be continued for at least another year. Future remediation of the plume down gradient could be looked into, but with new construction in the area and the airport traffic this could be difficult and costly.

Estimated Total Costs: Costs for personnel to perform weekly system checks, sample the monitoring well network, research the down-gradient wells, and write up the data and reports.