

# Memo

**To:** File  
**From:** Mark Quarles  
**CC:** [Click here and type name]  
**Date:** 6/21/2001  
**Re:** 6/19/01 Meeting Information summary – Bruce Trotter City of Dickson Water Plant

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## **DK-21 Operation / TCE Detection**

On February 24, 1997, a finished water sample indicated a red flag because of 0.0013 mg/l TCE. Resample on April 7, 1997 again indicated TCE (0.0021 mg/l). The analytical report for that was dated April 21, 1997. After the results were obtained from TDEC (they apparently had the results before City), Bruce was informed by Angel Goike of TDEC to turn the well off. The DK-21 well was turned off on April 18, 1997. DK-21 pump is about 150 feet from the pump motor in the pump house. The pump is therefore about 147 feet below ground surface. A transducer that is set 3 feet above the top of the well, does not let the well pump lower than three feet above the pump to keep from burning the pump up.

After the TCE was found, they sampled their source waters and determined that TCE was in DK-21. They sampled the raw water at the lake (from the surface near the bank on the intake end). Raw water from DK-21 came from a tap on the well head in the pump house.

Bruce believes that a pump test on DK-21 was done sometime around late 1997 (or maybe early 1998) because of USGS dye trace. They wanted to try to pull water to the well (and dye). They had to get council approval to turn it on because of the electricity costs and the fact that the well was contaminated. He gave me some minutes of the meeting that simply said that the City was requested to operate the pump – with the estimated cost of \$6,000. That motion was approved. The meeting was on November 17, 1997.

Bruce said that Angel Goike and Louis Burnett approved discharging the pump water to the ground surface. The pump ran for 5 days for 24 hours, then was shut down for 2 days (weekend) for an unspecified period of time. Mike Bradley of USGS would know for sure.

Before Gene Johnson was employed with the City, they ran DK-21 5 days a week for 24 hours per day and 2 days (weekend) for 16 hours per day. Gene started with the City on February 3, 1998. Other than the period in March when they tried to restart the well, Gene was not around when the well was used. For the March period, they ran DK-21 24 hours a day for seven days a week. Its flow was combined with City Lake. When they tried to use just City Lake w/o DK-21, the manganese and iron values were too high, requiring large amounts of alum to settle (which causes taste and odor issues).

## **General**

Bruce started with the City in April 1995. Bruce is to send me a copy of the water line distribution map.

## **DK-21 Well House Visit**

We visited the DK-21 well house on Bird Armstrong's farm. The house and well is located roughly 200 yards to the east of the northeast corner of the landfill. The County constructed a pond just to the west of the pump to gather soils for borrow / landfill use. The pond is supposedly about 20 feet deep. It is maybe an acre in size. Bruce believes the time of construction to be around 1996 / 1997. He suggested that I call the landowner to find out more. Bird Armstrong home is 446-9223 and work is 446-4508. Jim Lunne of the landfill would also know.

## **THM Sampling and Analyses**

Bruce used to just sample one location, 555 Steele Road. It is to the north. Then the rule changed to require one sample each for north, south, east, and west. In 1995, they THM result at 555 Steele Road increased to "almost 2 parts". He will supply actual analytical results. We discussed the water line map relative to if THM samples are collected close to the plant (given that five of the orofacial clefts are near the plant). He said that no samples are collected near the plant.

## **Raw Water Intake on the Piney**

The intake is several miles to the southwest at the confluence of the East and West Piney Rivers. 8 intake laterals extend into the West fork and 2 extend into the east fork. The observed flow at the bridge on the East fork was around 2 feet deep.

## **Water Treatment Processes**

First, they do flash mixing using alum and sometimes caustic soda. Then it goes to coagulation chambers. Then the water goes to one of two sedimentation basins (parallel). Then to multi-media filters with weir overflows to the three (parallel) sand filters. The filters are "high rate" filters. There were three filters before and after the plant upgrade. After filtration, they chlorinate with chlorine gas. Then it goes to a concrete clear well that is partially below ground. It is then pumped to the distribution system. Nothing major happened in the upgrade other than increasing the hydraulic capacity from 2 MGD to 4 MGD.

## **Industrial Park Drive-by**

A drive-by was conducted to locate major industries in the park to compare to plotted locations by address. It is attached.