



Dell City Flood Dams & Aquifer Recharge

Status: operational since 1980s

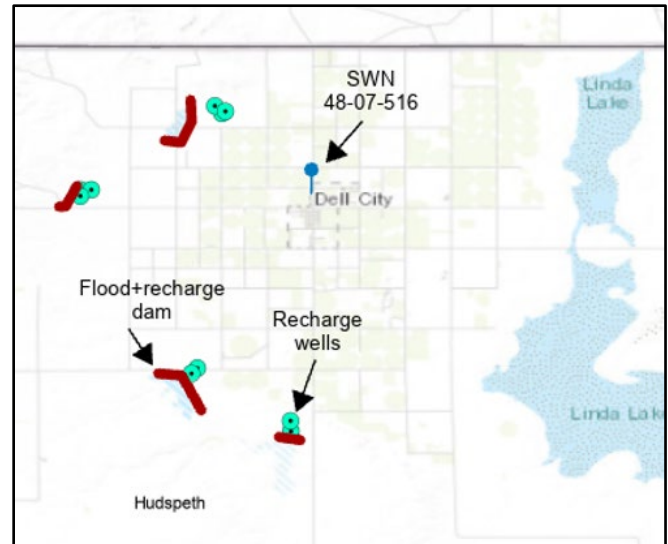
Water User(s): farmers in the Dell Valley area

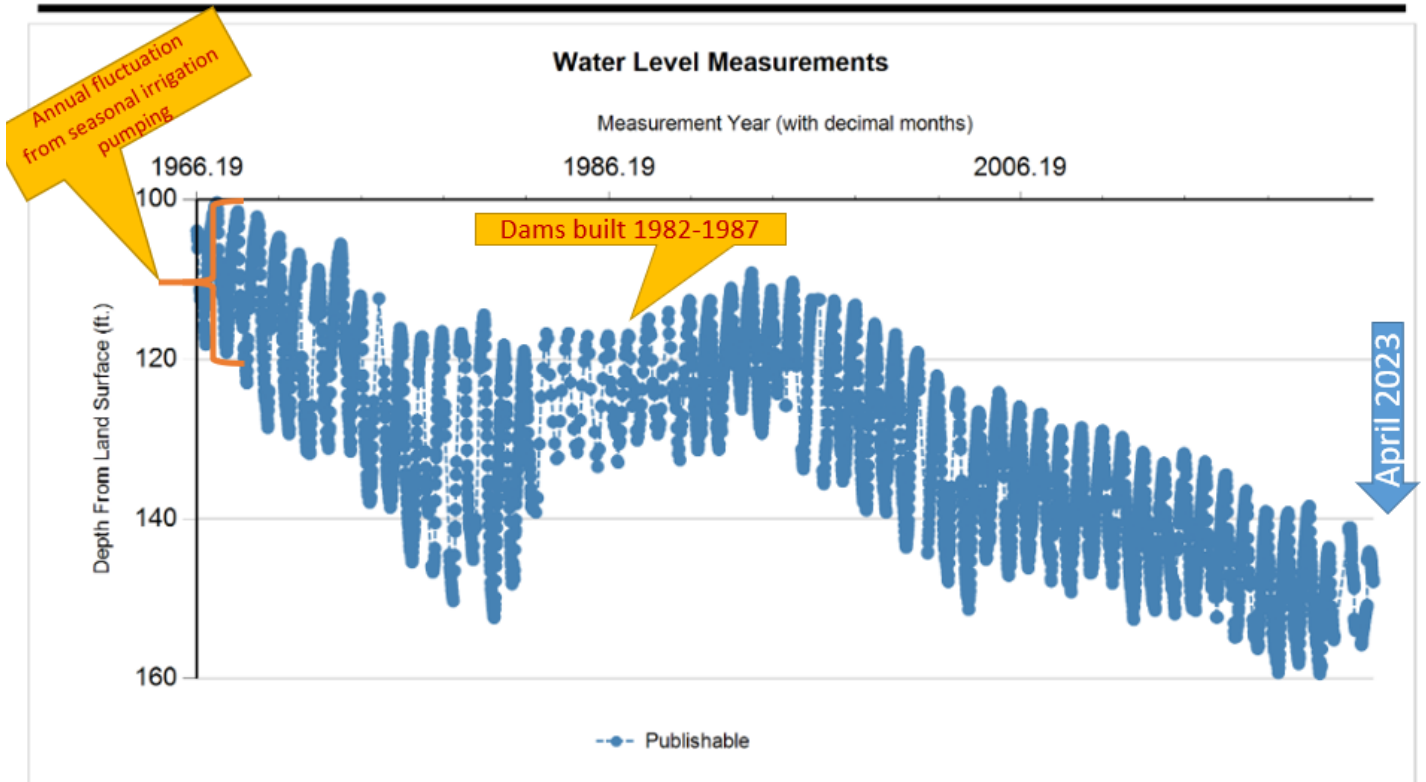
Source water: rainwater, stormwater

Storage zone: Bone Spring-Victorio Peak Aquifer (minor aquifer of Texas), unconfined

Highlights:

- Operated, inspected, and maintained in cooperation between Hudspeth County Commissioners Court, Hudspeth County Underground Water Conservation District No. 1 (HCUWCD1), and the U.S. Department of Agriculture Natural Resources Conservation Service (NRCS)
- 4 earth dams, built by the U.S. Army Corps of Engineers (USACE) 1982-1987
- Built based on the community request for watershed improvements following devastating flood in August 1966
- The dams have relatively large and isolated catchment areas, one may catch a rain event and the others will be dry
- Recharge wells were built since they were considered affordable compared to creating long channels in the valley, there was also hope they would improve declining water levels and quality in the aquifer
- 11 recharge wells, drilled from 1979-1986, 1170-1505 feet deep, cased to 44-161 feet down and open hole the rest of the depth, target depths based on local knowledge of improving wells by drilling them deeper
- Recharge needs to be actively managed during rainfall events to allow the initial flood flush to go over the principal spillway and then divert “cleaner” water flow to the wells. Water needs to flow over the emergency spillway in order for the wells to be used, the wells are gravity fed and at the low point of depressions, and their main purpose is flood control
- Recharge wells have never been used since it hasn’t rained enough for water to overtop the any of the emergency spillways
- TCEQ considers the recharge wells “Historical”, authorization numbers 5R2100024-5R2100034
- Fall 2022 - 6” of rain in the Cornudas Wash, it washed out fences but didn’t overtop the dam spillway, so the dam protected the town, as of February 2023 the sandhill cranes are there in the evenings since there was still water
- Benefits to recharging the aquifer have not been quantified
- State Well Number (SWN) 48-07-516 is at the Dell City Community Center, was drilled in 1952, is completed in the Bone Spring-Victorio Peak Aquifer, it is a 300-foot deep cased to 150 feet, it has water level data well since 1966
- Water quality: controlled by dissolution of minerals along the flow path into and through the aquifer and irrigation water percolating down through the soil zone, increasing total dissolved solids over time indicates ag recharge





<https://www3.twdb.texas.gov/apps/waterdatainteractive//GetReports.aspx?Num=4807516&Type=GWDB>

Sources:

Personal communications with HCUWCD1 in February 2023

Personal communications with NRCS in February 2023 and August 2021

National Inventory of Dams, USACE, <https://nid.sec.usace.army.mil/#/>, accessed February 2023

2018 Groundwater Management Plan for HCUWCD1

2008 Preliminary groundwater flow model for the Dell City Area by William R. Hutchison for El Paso Water Utilities

1993 New Mexico Geological Society Guidebook "Hydrogeologic Trends in The Dell City Area"

1984 Texas Christian University Master's Thesis "A groundwater recharge project associated with a flood protection plan in Hudspeth County, Texas" by Homer H. Logan