

Table 1. Aquifer characteristics related to ASR

Aquifer	Lithology	Structural Characteristics	Water Quality Notes	Suitability for ASR*
Major Aquifer				
Carrizo-Wilcox	sand, gravel, silt, clay	minor local faulting	some high Fe and Mg levels	yes
Edwards (Balcones Fault Zone)	limestone, dolomite	highly faulted, fractured, karst	increased salinity with depth	in places
Edwards-Trinity (Plateau)	limestone, dolomite, sandstone, shale	some faults, fractures, karst	increased salinity with depth	in places
Gulf Coast	thick sands, clay	some faults, salt domes	increased salinity with depth	yes
Hueco-Mesilla Bolsons	sand, gravel, silt, clay	discontinuous sand bodies	increased salinity with depth	yes
Ogallala	sand, gravel, silt, clay	discontinuous sand bodies	some high NO ₃ levels	yes
Pecos Valley	sand, gravel, silt, clay	unconfined alluvium	some high Cl, SO ₄ ²⁻ , As, radionuclides	yes
Seymour	gravel, sand, silty clay	discontinuous sand bodies	some high Cl, NO ₃ levels	yes
Trinity	limestone, dolomite, sandstone, shale	some faults, fractures, karst	generally fresh	yes
Minor Aquifer				
Blaine	shale, gypsum, anhydrite, salt, dolomite	karst, solution channels	overall poor quality	not likely
Blossom	alternating sand and clay beds	gently dipping beds	some high Fe, Na, F, HCO ₃ levels	yes
Bone Spring–Victorio Peak	limestone	jointed, fractured	slightly saline	yes
Brazos River Alluvium	sand, gravel, silt, and clay	complex sand body geometries	generally fresh	in places
Capitan Reef Complex	cavernous dolomite and limestone	faulted, fractured, karst	generally fresh	not likely
Cross Timbers	limestone, shale, and sandstone	fractures	increased salinity with depth	yes
Dockum	gravel, sandstone, siltstone, shale	discontinuous sand bodies	fresh in Santa Rosa Sand	yes
Edwards-Trinity(High Plains)	limestone, sandstone	gently dipping beds	generally slightly saline	yes
Ellenburger–San Saba	limestone and dolomite	faulted, fractured, karst	some high radium and radon levels	not likely
Hickory	sandstone	faulted, fractured	some high radium and radon levels	not likely
Igneous	pyroclastic rock, lava, volcanoclastic	some faults, fractures	generally fresh	yes
Lipan	gravels and conglomerates, some clay	unconfined alluvium	variable salinity	yes
Marathon	limestone and older Paleozoic rocks	folded, faulted, fractured	generally fresh	not likely
Marble Falls	limestone	fractures, solution channels	susceptible to pollution	not likely
Nacatoch	sandstone, mudstone or clay	faulted, discontinuous sands	generally fresh to slightly saline	yes
Queen City	sands and clay	gently dipping beds	generally fresh	yes
Rita Blanca	sand, gravel, sandstone	wholly confined	generally fresh	yes
Rustler	dolomite, limestone, and gypsum	fractured, karst	slightly to moderately saline	not likely

Aquifer	Lithology	Structural Characteristics	Water Quality Notes	Suitability for ASR
Minor Aquifer (cont.)				
Sparta	sand, silt, clay	gently dipping beds	high Fe, increased salinity with depth	yes
West Texas Bolsons	limestone, volcanic, silt, clay	closed fault bounded basins	salinity varies with basin	yes
Woodbine	interbedded sandstone, clay, shale	gently dipping beds	generally fresh	yes
Yegua-Jackson	interbedded sand, silt, and clay	discontinuous sand bodies	generally fresh	yes
Fe-iron, Mg-magnesium, F-fluoride, Na-sodium, Cl-chloride, HCO ₃ -bicarbonate, SO ₄ ²⁻ -sulfate, As-arsenic, NO ₃ -nitrate				
* Suitability based primarily on lithology and to a lesser degree, water quality, would need to include an analysis of aquifer productivity (current wells), source water and water demand				

Literature review of recent ASR and aquifer recharge suitability studies

A summary of each of the compiled studies is provided in Table 2, including any methodologies that were applied or developed related to hydrogeology, excess water, and water supply needs screenings. The bold text in Table 2 highlights aspects of prior work that are estimated to be relevant to this statewide survey for Texas.