Appendix 6C
Drought Triggers

Drought Triggers for Surface Water Sources

For surface water sources, a single drought trigger was identified based on reservoir content or stream flow. These trigger levels and associated management actions are for reservoirs outlined in Table 6C-1. Table 6C-2 presents the same data for run-of-the-river sources.

Table 6C-1
Drought Triggers for Region F Reservoirs

Reservoirs	Trigger	Action
Lake J.B. Thomas	Content is below 24,120 ac-ft	Notify City of Snyder of drought conditions. End pumping operations at the Big Spring/Odessa intake. Coordinate with CRMWD and Snyder Drought Contingency Plans.
E.V. Spence Reservoir	Content is below 108,400 ac-ft	Notify Cities of Robert Lee and San Angelo. Limit releases for water quality purposes. Coordinate with Drought Contingency Plans for CRMWD, Robert Lee and San Angelo.
O.H. Ivie Reservoir	Content is below 114,601 ac-ft	Notify customers of drought conditions. Limit large releases for water quality purposes. Coordinate with Drought Contingency Plans for CRMWD and San Angelo.
Lake Colorado City	Content is below 16,301 ac-ft	Notify customers of drought conditions. Request voluntary reduction in water use. Coordinate with customers' Drought Contingency Plans.
Champion Creek Reservoir	Content is below 9,918 ac-ft	Notify customers of drought conditions. Request voluntary reduction in water use. Coordinate with customers' Drought Contingency Plans.
Mountain Creek Lake	Content is below 465 ac-ft	Notify customers of drought conditions. Request voluntary reduction in water use. Coordinate with customers' Drought Contingency Plans.
Oak Creek Reservoir	Content is below 13,030 ac-ft	Notify customers of drought conditions. Request voluntary reduction in water use. Coordinate with customers' Drought Contingency Plans.
Lake Ballinger/Moonen	Content is below 1908 ac-ft	Notify customers of drought conditions. Request voluntary reduction in water use. Coordinate with customers' Drought Contingency Plans.
Lake Winters	Content is below 4,400 ac-ft	Notify customers of drought conditions. Request voluntary reduction in water use. Coordinate with customers' Drought Contingency Plans.

Table 6C-1 Drought Triggers for Region F Reservoirs (continued)

Reservoirs	Trigger	Action
O.C. Fisher Reservoir	Content is below 9,000 ac-ft	See San Angelo System
Twin Buttes Reservoir	Content is below 12,000 ac-ft	See San Angelo System
Lake Nasworthy	Content is below 9,000 ac-ft	See San Angelo System
San Angelo System	Content is below 30,000 ac-ft	Notify customers of drought conditions. Initiate Drought Contingency Plan for San Angelo.
Lake Coleman	Content is below 18,000 ac-ft (Lake level < 1705.5 msl)	Notify customers of drought conditions. Request voluntary reduction in water use. Coordinate with City of Coleman's Drought Contingency Plan.
Hords Creek Reservoir	Content is below 2,268 ac-ft	Notify public of drought conditions. Request voluntary reduction in water use.
Lake Brownwood	Content is below 94,600 ac-ft	Notify customers via local media. Coordinate with Drought Contingency Plans for BCWID and Cities of Early, Brownwood.
Brady Creek Lake	Content is below 9,860 ac-ft	When Brady Reservoir begins to be used for water supply, notify customers of drought conditions. Request voluntary reduction in water use. Coordinate with City of Brady's Drought Contingency Plan.
Red Bluff Reservoir	Content is below 52,146 ac-ft at the end of January	Notify customers of drought conditions.

Table 6C-2
Drought Triggers for Region F Run-of-the-River Supplies

Source	Trigger	Action
Colorado River	Using USGS gage at Winchell, Tx, flows are less than 25 cfs for more than 30 consectutive days between September and June.	Notify public and irrigators of drought conditions. Request voluntary reduction in water use.
Concho River	Using USGS gage at Paint Rock, Tx, flows are less than 10 cfs for more than 30 consectutive days between October and February or less than 5 cfs between March and June.	Notify public and irrigators of drought conditions. Request voluntary reduction in water use. Coordinate with the City of Paint Rock's Drought Contingency Plan (if available)
Llano River	Using USGS gage at Junction, Tx, flows are less than 100 cfs for more than 30 consectutive days.	Notify public and irrigators of drought conditions. Request voluntary reduction in water use. Coordinate with the City of Junction's Drought Contingency Plan.
San Saba River	Using USGS gage at Menard, Tx, flows are less than 10 cfs for more than 30 consectutive days between November and May or less than 3 cfs between June and October.	Notify public and irrigators of drought conditions. Request voluntary reduction in water use. Coordinate with the City of Menard's Drought Contingency plan.

Groundwater Drought Triggers

Drought contingency plans provide a structured response that is intended to minimize the damaging effects caused by the water shortage conditions. A common feature of drought contingency plans is a structure that allows increasingly stringent drought response measures to be implemented in successive stages as water supply diminishes or water demand increases. This measured or gradual approach allows for timely and appropriate action as a water shortage develops. The onset and termination of each implementation stage should be defined by specific "triggering" criteria. Triggering criteria are intended to ensure that timely action is taken in response to a developing situation and that the response is appropriate to the level of severity of the situation.

Drought response triggers should be specific to each water supplier and should be based on an assessment of the water user's vulnerability. Groundwater drought triggers may be based on levels of user demand, water treatment plant or delivery system capabilities, water levels within designated monitor wells that have a record of historical measurements or in some cases using short or long term weather patterns. Whichever method is employed, trigger criteria should be defined on well-established relationships between the benchmark and historical experience. If historical observations have not been made then common sense must prevail until such time that more specific data can be presented.

Ground-water triggers are not as easily identified as factors related to surface-water systems. This is attributable to (1) the rapid response of stream discharge and reservoir storage to short-term changes in climatic conditions and (2) the typically slower response of ground-water systems to recharge processes. Wet climatic conditions over a period of one or two years might have a significant impact on the availability of surface water. However, aquifers in the same area might not show comparable levels of response for much longer periods of time, depending on infiltration rates, size and location of the recharge areas, the distribution of precipitation, and the extent to which aquifers are developed and exploited by major users of groundwater.

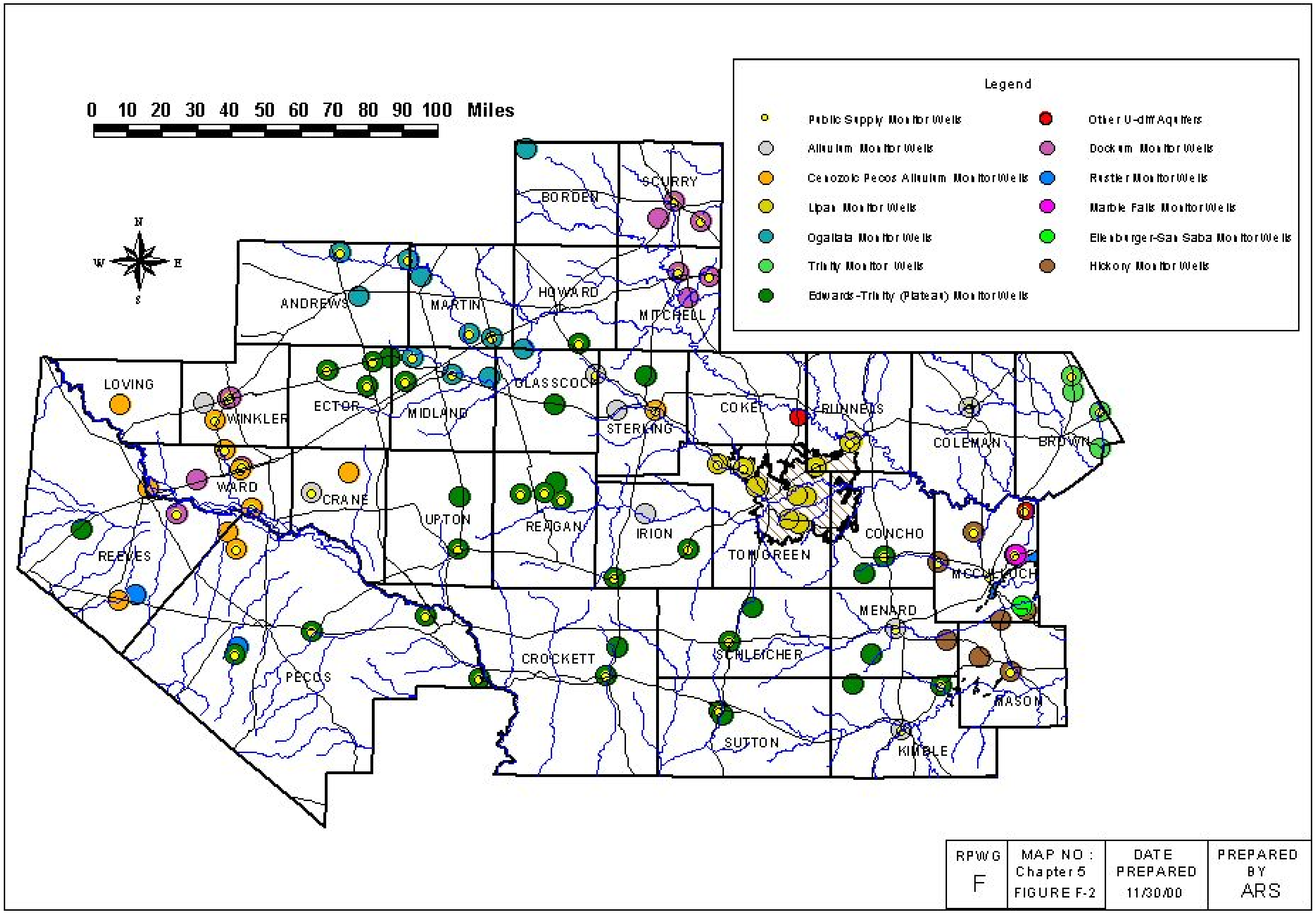
Aquifers that do not receive sufficient recharge to offset natural discharge and pumpage may be depleted of groundwater (e.g., mined) over time. The rate and extent of ground-water mining are related to the timeframe and the extent to which withdrawals exceed recharge. In such aquifers, water levels may fall over long periods of time, eventually reaching a point at which the cost of lifting water to the surface becomes uneconomic. Thus, water levels alone in such areas may not be a satisfactory drought trigger. Instead, communities might consider the average annual rate of water level decline relative to the remaining saturated thickness of the aquifer, and increased well pumping costs as water levels decline as a drought trigger indicators.

Water levels in observation wells in and adjacent to municipal well fields, especially wells completed in aquifers that respond relatively quickly to recharge events, may be established as drought triggers for municipalities if historical water level measurements are available. Water levels below specified elevations for a pre-determined period of time might be interpreted to be reasonable ground-water indicators of drought conditions. Until such historical water-level trends are established, municipalities will likely continue to depend on demand as a percentage of production capacity as their primary drought trigger.

As discussed earlier in this section, ground-water levels in this part of the State have only limited use as drought triggers. Although numerous water-level measurements are available on a number of wells in the Region F, most of this data represents only one measurement a year. This does not allow for observation of seasonal fluctuation or response to recharge events. However, wells have been selected that could monitor water levels in each aquifer, county and for each user group and the locations of these wells are illustrated in Figure 6C-1.

Table 6C-3 lists the individual available well information obtained from TWDB and TNRCC databases including well location, owner, elevation, depth, use and historical water levels. Historical water level trends, aquifer type, well-saturated thickness, drought trigger levels and present drought status were determined from this data. Wells selected in this list had a combination of the most complete record of historical water levels and/or

Figure 6C-1
Location of Water Level Monitoring Wells in Region F



Locations of Water Level Monitor Wells
in Region F

Table 6C-3

Table 6C-3 cont

the most recent water levels (1994 -2000). If water level information was unavailable, the most recent well drilled and/or the deepest well was selected.

When historical water level data was available, a benchmark water level from each well was determined by calculating the average of the historical water levels. Drought trigger levels were set at 50% mark between the benchmark level and the historical low. If the difference in the historical low and benchmark level for a well was less than 10% of the water column in the well, it was assumed that there is not sufficient water level variation to establish drought trigger levels. Also, if the historical water level data indicated the well was being mined, an average mining rate was determined and the trigger level was set at a 25% increase in the average mining rate.

Wells assigned the "Insufficient data" status should not be used for groundwater management decisions until additional data is collected. Drought related decisions of groundwater management in these areas should be based a combination of weather, user demand and or water system delivery capacity to determine drought triggers.

Water-use categories in the Region F other than municipal that are dependent on groundwater as their primary or only source of supply must rely on a number of factors to identify drought conditions. In most cases, atmospheric condition (days without measurable rainfall) is the most obvious factor. Various drought indices (Palmer, Standard Precipitation, and Keetch-Byram) are available from State and local sources. Groundwater conservation districts, agricultural agencies, as well as individuals can access these indices for use in determining local drought conditions and appropriate responses.

The TWDB staff measures water levels of approximately a third of the monitor wells listed in Table 6C-3. Groundwater conservation districts are generally responsible for monitoring conditions within their boundaries and making appropriate public notification. Outside of existing districts, the TWDB should assume responsibility of public notification of drought conditions based on their water-level monitoring network. Appropriate drought responses are the responsibility of and at the discretion of private well owners. Wells selected for drought contingency triggers should be re-evaluated for appropriateness during each planning cycle.

Table 6C-3

Region F Water Level Monitor Wells

	Monitoring Well													Drought Triggers				2001			Est. Availability	(DW) Drought	(SD) Severe
SWN	County	Aquifer	Owner	Elev.	Well Depth	Use	most recent WL	WL/ Decade Historical Trend	most recent water column in Well	Historical Lowest_WL	Historical Highest_WL	Decade Avg. WL	Diff. Of Avg - Lowest_WL	W.L. Avg-50%	Mining	W.L. decrease/ year	Drought Response	WL's <	Present Status	Aquifer Type	for 50 yrs Historocal Trend	Warning Ave.-25%	Drought Ave.-75%
2736201	Andrews	121OGLL	City of Andrews	3158	200	P	-104.2	-1.4	96	-104.2	-99.9	-102.1	-2.1	Insuff			Additional data is needed.	-105.2	**DW**	unconfined	Yes	-102.6	-103.7
2745401	Andrews	121OGLL	Charley Welch	3098	125	I	-71.8	-7.3	53	-73.2	-49.9	-61.6	-11.7	-67.4			Notification of drought conditions		**D**	unconfined	Yes	-64.5	-70.3
2739405	Andrews	121OGLL	City of Midland	2960	215	P								Insuff			Additional data is needed.		**DW**	unconfined	Unknown/Yes		
2803601	Borden	121OGLL	N. Jones Hubert Walker	2953	57	I	-20.3	2.7	37	-31.2	-13.5	-22.4	-8.9	-26.8			Notification of drought conditions		**OK**	unconfined	Yes	-24.6	-29
4101918	Brown	218TVPK	Claude McInnis	1675	135	H	-104.7	-7.3	30	-105.7	-75.7	-90.7	-15	-98.2			Notification of drought conditions		**SD**	unconfined	No	-94.5	-102
4101234	Brown	218TVPK	May Water Supply	1650	118	P	-62.9	0.9	55	-85.7	-62.9	-74.3	-11.4	-80			Coordinate with entity's DC plan		**OK**	unconfined	Yes	-77.1	-82.8
4118650	Brown	218TVPK	D.A. Young	1475	134	I	-29.8	-0.3	104	-32.6	-28.8	-30.7	-1.9	Insuff			Additional data is needed.		**OK**	unconfined	Yes	-31.2	-32.1
4110641	Brown	218TVPK	City of Blanket	1650	240	P								Insuff			Additional data is needed.		**D**	unconfined	Unknown/No		
4314602	Coke	318CLFK	Mrs. Imogene Griffin	1835	160	H	-119.6	1.5	40	-125.5	-119.6	-122.5	-2.9	Insuff			Additional data is needed.		**OK**	unconfined	Yes	-123.3	-124.7
4213201	Coleman	110ALVM	City of Coleman	1690	22	P								Insuff			Additional data is needed.		**D**	unconfined	Unknown/No		
4249806	Concho	218EDRDA	J. C. Sorrell	2184		U	-111.9			-113.1	-111.9	-112.5	-0.6	Insuff			Additional data is needed.		**OK**	unconfined	Unknown	-112.6	-112.9
4250102	Concho	218EDRDA	City of Eden	2044	36	P	-26.6	0.4	9	-28.2	-25.6	-26.9	-1.3	-27.6			Coordinate with entity's DC plan		**DW**	unconfined	Unknown/No	-27.2	-27.9
4535301	Crane	110ALVM	City of Crane	2521	156	P		-16.1		-112.3	-48	-80.2	-32.2		Yes	-2	Coordinate with entity's DC plan		**SD**	unconfined	Unknown	-88.2	-104.3
4529401	Crane	100PECS	Phillip's Crane Water	2670	105	U	-44.4	3.0	61	-64.9	-44.4	-54.7	-10.3	-59.8			Notification of drought conditions		**OK**	unconfined	Yes	-57.2	-62.4
5415304	Crockett	218EDRDA	John Childress	2540	420	I	-356.6	-0.6	63	-358.4	-354	-356.2	-2.2	Insuff			Additional data is needed.		**OK**	unconfined	Yes	-356.8	-357.9
5423106	Crockett	218EDRDA	Crockett County	2400	397	P	-323.1	-0.5	74	-323.1	-321.3	-322.2	-0.9	Insuff			Additional data is needed.		**DW**	unconfined	Yes	-322.4	-322.9
2762801	Ector	218ALRS	L. W. Bell	2925	147	I	-127.1	-14.6	20	-127.1	-39.4	-83.3	-43.9		Yes	-1.9	Notification of drought conditions	-127.3	**SD**	unconfined	No	-94.2	-116.1
4505607	Ector	218ALRS	CRMWD	2951	180	P	-111.5	-4.5	69	-113.7	-84.7	-99.2	-14.5	-106.5			Coordinate with entity's DC plan		**DW**	unconfined	Yes	-102.8	-110.1
2761903	Ector	218ALRS	City of Odessa-Parks	2963	91	P	-85.7	-5.0	5	-85.7	-70.6	-78.2	-7.6		Yes	-0.6	Coordinate with entity's DC plan	-85.8	**SD**	unconfined	Yes	-80	-83.8
4504107	Ector	218ALRS	City of Goldsmith	3165	159	P								Insuff			Additional data is needed.		**D**	unconfined	Unknown/No		
4406307	Glasscock	110ALVM	CRMWD	2522	229	P		-0.8		-75.1	-72	-73.6	-1.6	-74.3			Coordinate with entity's DC plan		**DW**	unconfined	Unknown/Yes	-73.9	-74.7
4413103	Glasscock	218ALRS	Fred Ratliff	2605	200	I	-91.6	-5.2	108	-91.6	-70.7	-81.2	-10.5		Yes	-1	Notification of drought conditions	-92.7	**D**	unconfined	Yes	-83.8	-89
2859301	Howard	121OGLL	Dr. G.T. Hall	2519	108	I	-30.5	7.6	78	-60.8	-30.5	-45.7	-15.2	-53.2			Notification of drought conditions		**OK**	unconfined	Yes	-49.4	-57
2862121	Howard	218ALRS	City of Forsan	2765	284	P								Insuff			Additional data is needed.		**Unknown**	unconfined	Unknown		
4440901	Irion	110AVAN	John Sheen	2230	121	I	-16.2	0.6	105	-18.7	-14.2	-16.5	-2.3	Insuff			Additional data is needed.		**OK**	unconfined	Yes	-17	-18.1
4455811	Irion	218EDDT	Barnhart Water	2625	418	P	-144.4	35.5	274	-315.5	-144.4	-230	-85.6	-272.7			Coordinate with entity's DC plan		**OK**	unconfined	Yes	-251.3	-294.1
4455811	Irion	218EDDT	Barnhart Water Works	2625	418	P	-136.2	37.6	282	-315.5	-136.2	-225.9	-89.7	-270.7			Coordinate with entity's DC plan		**OK**	unconfined	Yes	-248.3	-293.1
4350215	Irion	218ALRS	City of Mertzon	2202	130	P								Insuff			Additional data is needed.		**Unknown**	unconfined	Unknown		
5634307	Kimble	100ALVM	City of Junction		21	P								Insuff			Additional data is needed.		**D**	unconfined	Unknown/No		
5524601	Kimble	218EDRDA	A.D. Rust	2283	318	S	-236	5.5	82	-257.8	-227.1	-242.4	-15.3	-250.1			Notification of drought conditions		**OK**	unconfined	Yes	-246.3	-253.9
5620513	Kimble	210CRCS	London Community		90	P								Insuff			Additional data is needed.		**Unknown**	unconfined	Unknown		
4612402	Loving	100PECS	Johnson Ranch Partner	2840	173	S	-136.3	0.4	37	-139.6	-133.8	-136.7	-2.9	Insuff			Additional data is needed.		**OK**	unconfined	Yes	-137.4	-138.9
2739903	Martin	121OGLL	City of Midland	2895	182	U	-134.3	-5.5	48	-139.4	-112.2	-125.8	-13.6	-132.6			Notification of drought conditions		**D**	unconfined	Yes	-129.2	-136
2849908	Martin	121OGLL	CRMWD	2742	188	P		-11.2		-113.9	-69	-91.5	-22.5		Yes	-1.5	Coordinate with entity's DC plan		**SD**	unconfined	Unknown	-97.1	-108.3
2850813	Martin	121OGLL	City of Stanton	2670		P								Insuff			Additional data is needed.		**Unknown**	unconfined	Unknown		
5623115	Mason	371HCKR	City of Mason	1590	335	P	-83.5		252					Insuff			Additional data is needed.		**DW**	confined	Unknown/Yes		
5613601	Mason	371HCKR	Mrs. Earl Larmore	1741	425	I	-69.8	-3.6	355	-72.3	-51.8	-62.1	-10.3	-67.2			Notification of drought conditions		**DW**	unconfined	Yes	-64.6	-69.7
4239901	McCulloch	324STRN	City of Mercury	1475	436	P								Insuff			Additional data is needed.		**DW**	unconfined	Unknown/Yes		
4255203	McCulloch	320MBLF	Wayne Myers	1758	240									Insuff			Additional data is needed.		**Unknown**	unconfined	Unknown		
4263801	McCulloch	367EBHK	J.A. Vince	1553	349	I								Insuff			Additional data is needed.		**DW**	unconfined	Unknown/Yes		
4255101	McCulloch	371HCKR	Rochelle Water	1778	2350	P	-320.2	-8.5	2030	-326.1	-294.7	-310.4	-15.7	-318.3			Coordinate with entity's DC plan		**D**	confined	Yes	-314.3	-322.2
5606614	McCulloch	371HCKR	T.W.D.B.	1743	641	N	-143.5	-6.8	498	-143.5	-123.1	-133.3	-10.2		Yes	-0.9	Notification of drought conditions	-148.5	**DW**	unconfined	Yes	-135.9	-141
4245601	McCulloch	371HCKR	Lohn WSC	1561	2746	P	-69.8	-16.0	2676	-69.8	-21.7	-45.8	-24.1		Yes	-2	Coordinate with entity's DC plan	-96.6	**DW**	unconfined	Yes	-51.8	-63.8
5607302	McCulloch	371HCKR	M.F. Deans	1552	117	I	-68.9	-7.4	48	-68.9	-32	-50.5	-18.5		Yes	-0.9	Notification of drought conditions	-69.4	**SD**	unconfined	Unknown/Yes	-55.1	-64.3
4252505	McCulloch	371PNPK	City of Melvin	1861	2400	P								Insuff			Additional data is needed.		**DW**	confined	Unknown/Yes		
5602501	Menard	100ALVM	City of Menard	1880	22	P								Insuff			Additional data is needed.		**D**	unconfined	Unknown/No		
5609612	Menard	218EDRDA	Eva Lively Westbrook	2272	270	S	-229.4	-3.9	41	-229.8	-214	-221.9	-7.9	-225.8			Notification of drought conditions		**SD**	unconfined	Yes	-223.9	-227.8
5612210	Menard	371HCKR	Earl Ray Anderson	1870	1080	I	-252.1	-20.7	828	-252.1	-190	-221.1	-31.1		Yes	-2.6	Notification of drought conditions	-260.4	**D**	confined	Unknown/Yes	-228.8	-244.3
4402202	Midland	121OGLL	B.W. Brown	2623	62	I	-44.2		18	-44.2	-28	-36.1	-8.1	-40.2			Notification of drought conditions	-44.4	**SD**	unconfined	Unknown	-38.1	-42.2
4401103	Midland	121OGLL	Le Roy Gill	2740		P	-40.6	3.3		-66.2	-40.6	-53.4	-12.8	-59.8			Notification of drought conditions		**D**	unconfined	Yes	-56.6	-63
2763501	Midland	121OGLL	City of Midland	2857	174	P								Insuff			Additional data is needed.		**Unknown**	unconfined	Unknown		
4507406	Midland	218ALRS	Midland Air Termin	2868	120	P	-38.7	-0.7	81	-42.6	-36.5	-39.6	-3.1	Insuff			Additional data is needed.		**OK**	unconfined	Yes	-40.3	-41.8
2942501	Mitchell	231DCKM	Elon Harrell	2126	137	I	-54.9	1.2	82	-60.8	-46.6	-53.7	-7.1	-57.3			Notification of drought conditions		**OK**	unconfined	Yes	-55.5	-59
2935705	Mitchell	231DCKM	City of Loraine	2347	220	P								Insuff			Additional data is needed.		**DW**	unconfined	Unknown/Yes		
2934716	Mitchell	231DCKM	City of Colorado	2173	249	P								Insuff			Additional data is needed.		**DW**	unconfined	Unknown/Yes		
4648802	Pecos	112PECSA	Edgar Glass	2556	779	I	-138.9	-14.9	640	-138.9	-64.2	-101.6	-37.4		Yes	-1.9	Notification of drought conditions	-145.3	**DW**	unconfined	Yes	-110.9	-129.6
4656308	Pecos	100PECS	City of Imperial	2617	924	P								Insuff			Additional data is needed.		**DW**	unconfined	Unknown/Yes		
5303901	Pecos	218EDDT	TX DOT Rest Area	2876	462	P	-151.2	-2.5	311	-153.6	-138.5	-146.1	-7.6	-149.8			Notification of drought conditions		**DW**	unconfined	Yes	-147.9	-151.7
5216902	Pecos	218ALRS	City of Fort Stock	3259	517	P		-7.6		-282.5	-224.6	-253.6	-29	-268			Coordinate with entity's DC plan		**DW**	unconfined	Unknown/Yes	-260.8	-275.3
5308402	Pecos	218ALRS	City of McCamey	2383	272	P								Insuff			Additional data is needed.		**Unknown**	unconfined	Unknown		
5418504	Pecos	218EDDT	City of Sheffield	2175	294	P								Insuff			Additional data is needed.		**Unknown**	unconfined	Unknown		
5216608	Pecos	312RSLR	Belding Farms	3195	1600	I	-121	11.6	1479	-201.6	-121	-161.3	-40.3	-181.5			Notification of drought conditions		**OK**	confined	Yes	-171.4	-191.5
4437506	Reagan	218ALRS	City of Big Lake	2626	358	P	-213.5	-0.2	145	-213.5	-212.7	-213.1	-0.4	Insuff			Additional data is needed.		**DW**	unconfined	Yes	-213.2	-213.4
4429705	Reagan	218EDDT	Clayton Henderson	2651	300	I	-109.6	-4.0	190	-146.5	-85.9	-116.2	-30.3	-131.4			Notification of drought conditions		**OK**	unconfined	Yes	-123.8	-138.9
4436303	Reagan	218ALRS	Regan County Water	2668	336	P								Insuff			Additional data is needed.		**Unknown**	unconfined	Unknown		
5204105	Reeves	100PECS	Seventh Day Advent	2943	350	I	-211.2	-6.5	139	-242.8	-178.8	-210.8	-32	-226.8			Notification of drought conditions		**OK**	unconfined	Yes	-218.8	-234.8
4642810	Reeves	218EDDT	Barnes-Ramshaud Wyn	2961	1018	I	-49.2	11.0	969	-179.6	-49.2	-114.4	-65.2	-147			Notification of drought conditions		**OK**	unconfined	Yes	-130.7	-163.3
4646206	Reeves	231DCKM	City of Pecos	2616	198	P	-153	-6.3	45	-153	-80	-116.5	-36.5		Yes	-0.8	Coordinate with entity's DC plan	-153.5	**SD**	confined	No	-125.6	-143.9
4660902	Reeves	312RSLR	R. W. Winterrowd	2950	1450		-257.1	45.5	1193	-439.2	-257.1	-348.2	-91.1	-393.7			Notification of drought conditions		**OK**	confined	Yes	-370.9	-416.4
4324301	Runnels	318ARRY	Lenard Halfmann	1672	50	I	-38.5	-3.5	12	-38.5	-27.9	-33.2	-5.3	-35.9			Notification of drought conditions	-38.6	**SD**	unconfined	No	-34.5	-37.2
4331211	Runnels	318CLFK	City of Miles	1802	150	P								Insuff			Additional data is needed.		**Unknown**	unconfined	Unknown		
4324601	Runnels	318CLFK	Rowena Corp.	1683	73	P								Insuff			Additional data is needed.		**Unknown**	unconfined	Unknown		
5512116	Schleicher	218EDRDA	City of Eldorado	2441	450	P	-312.5	2.3	138	-321.1	-312.5	-316.8	-4.3	Insuff			Additional data is needed.		**OK**	unconfined	Yes	-317.9	-320
4361706	Schleicher	218EDRDA	W. A. Davis Estate	2195	160	U	-92	-0.1	68	-92.4	-84	-88.2	-4.2	Insuff			Additional data is needed.		**DW**	unconfined	Yes	-89.3	-91.4
2918902	Scurry	231DCKM	City of Hermleigh	2445	350	P	-202.6	-2.6	147	-202.6	-186.9	-194.8	-7.8	-198.7			Coordinate with entity's DC plan	-204.1	**D**	confined	Yes	-196.7	-200.6
2917704	Scurry	231DCKM	Western Texas Col.	2289	382	I	-67.9	-2.0	314	-86.4	-60	-73.2	-13.2	-79.8			Notification of drought conditions		**OK**	unconfined	Yes	-76.5	-83.1
2917309	Scurry	231DCKM	CRMWD	2381	215	P		-12.3		-118.5	-94	-106.3	-12.3		Yes	-1.5	Coordinate with entity's DC plan		**DW**	confined	Unknown/Yes	-109.3	-115.4
4415201	Sterling	110AVAN	Lena R. Foster	2452	123	I	-80.1	-0.2	43	-81.4	-78.2	-79.8	-1.6	Insuff			Additional data is needed.		**OK**	unconfined	Yes	-80.2	-81
4309102	Sterling	100CPDG	City of Sterling	2263	107	P	-30.5	0.6	77	-33.2	-27.7	-30.5	-2.8	Insuff			Additional data is needed.		**OK**	unconfined	Yes	-31.1	-32.5
4408307	Sterling	218ALRS	Willie Mae Foster	2468	162	I	-47		115	-47	-40.2	-43.6	-3.4	Insuff			Additional data is needed.	-48.2	**DW**	unconfined	Yes	-44.5	-46.2
5527620	Sutton	218EDRDA	City of Sonora	2245	278	P	-224		54	-224	-224	-224		Insuff			Additional data is needed.		**DW**	unconfined	Unknown		
5527606	Sutton	218EDRDA	Sam Allison	2110	180	I	-149.4	-0.1	31	-160.3	-142.6	-151.5	-8.8	-155.9			Notification of drought conditions		**OK**	unconfined	Unknown	-153.7	-158.1
4346301	Tom Green	318BLGN	Ripple Brothers	1884	214	I	-104.5	-0.4	110	-126.7	-73.2	-100	-26.8	-113.3			Notification of drought conditions		**OK**	confined	Yes	-106.6	-120
4339104	Tom Green	318BLGN	R. E. McCullough	1813	103	I	-81.8	-2.0	21	-83.1	-53.4	-68.3	-14.9	-75.7			Notification of drought conditions		**SD**	confined	Unknown	-72	-79.4
4338301	Tom Green	112LNCZ	A. F. Schumm	1820	125	I	-70.8	-0.3	54	-85.1	-53.1	-69.1	-16	-77.1			Notification of drought conditions		**OK**	unconfined	Yes	-73.1	-81.1
4346204	Tom Green	112LEON	A. J. Bean	1862	117	I	-58.1	1.8	59	-74.5	-50.1	-62.3	-12.2	-68.4			Notification of drought conditions		**OK**	unconfined	Yes	-65.4	-71.5
4329701	Tom Green	112LEON	Ray Moore (Morris E)	1914	82	I	-45.4		37	-48.1	-35.2	-41.7	-6.5	-44.9			Notification of drought conditions		**DW**	unconfined	Yes	-43.3	-46.5
4328202	Tom Green	112LEON	Concho Rural Water	2001	100	P	-38	-2.5	62	-38	-33	-35.5	-2.5	Insuff			Additional data is needed.	-38.6	**DW**	unconfined	Yes	-36.1	-37.4
4327201	Tom Green	112LEON	State Sanatorium	2014	75	P		-1.0		-36.5	-17.3	-26.9	-9.6	-31.7			Notification of drought conditions		**DW**	unconfined	Unknown/Yes	-29.3	-34.1
4433501	Upton	218ALRS	Ray Barrett	2744	340		-188.2	-8.3	152	-188.2	-154.9	-171.6	-16.7		Yes	-1	Notification of drought conditions	-189.7	**D**	unconfined	Yes	-175.7	-184
4449217	Upton	218ALRS	Upton County	2642	360	P								Insuff			Additional data is needed.		**Unknown**	unconfined	Unknown		
4632626	Ward	100PECS	CRMWD	2642	295	P	-148.2	-13.1	147	-148.2	-109	-128.6	-19.6		Yes	-1.6	Coordinate with entity's DC plan	-149.7	**DW**	unconfined	Yes	-133.5	-143.3
4637101	Ward	100PECS	Fred and Calvin Ge	2574	300	I	-13.7	0.5	286	-18	-13.7	-15.9	-2.2	Insuff			Additional data is needed.		**OK**	unconfined	Yes	-16.4	-17.5
4533826	Ward	100CPDG	City of Grandfalls	2521	225	P								Insuff			Additional data is needed.		**DW**	unconfined	Unknown/Yes		
4624719	Ward	100PECS	City of Monahans	2692	385	P								Insuff			Additional data is needed.		**DW**	unconfined	Unknown/Yes		
4631702	Ward	231DCKM	Wilson Ranch	2667	160	H	-104.3	-0.7	56	-106.3	-97.7	-102	-4.3	Insuff			Additional data is needed.		**DW**	confined	Yes	-103.1	-105.2
4632630	Ward	231DCKM	City of Wickett	2653	400	P								Insuff			Additional data is needed.		**DW**	confined	Unknown/Yes		
4615402	Winkler	110ALVM	Winkler County	2830	190	I	-98.5	0.3	92	-106.7	-98.5	-102.6	-4.1	Insuff			Additional data is needed.		**OK**	unconfined	Yes	-103.6	-105.7
4615921	Winkler	100PECS	City of Wink School	2790	267	P								Insuff			Additional data is needed.		**DW**	unconfined	Unknown/Yes		
4616104	Winkler	231DCKM	City of Kermit	2857	559	P	-116.8	-2.8	442	-126.8	-102.8	-114.8	-12	-120.8			Coordinate with entity's DC plan		**OK**	confined	Yes	-117.8	-123.8
4616213	Winkler	231DCKM	Winkler County	2868	420	P								Insuff			Coordinate with entity's DC plan		**DW**	confined	Unknown/Yes		

WL = Water Level
I = Irrigation
H = Domestic

P = Public Water Supply
U = Unused
S = Used for Stock

Insuff - Insufficient historical water level data and/or variability to develop drought trigger levels

											Decade Average Water Levels			Most Recent	Direction of WLs/Decade Historocal Trend	Present Est. Sat. Thickness
SWN	County	Aquifer	Owner	Elevation	Well_depth	Drilled	Use	1930s	1940s	1950s	1960s	1970s	1980s	WL	Rec - Earl/decade	in Well
2736201	Andrews	121OGLL	City_of_Andrews	3158	200	1954	P					-99.9	-104.1	-104.2	-1.4	96
2745401	Andrews	121OGLL	Charley_Welch	3098	125	1969	I					-49.9	-73.2	-71.8	-7.3	53
2739405	Andrews	121OGLL	City_of_Midland	2960	215	1985	P						-114.5			

Aquifer Type	Historical Lowest_WL	Historical Highest_WL	Ave._WL	Est. Sufficient Availability for 50 yrs WL Decade Use	Diff. Between Ave. and Lowest_WL	(DW) Drought Warning Ave.-25%	(D) Drought Ave.-50%	(SD) Severe Drought Ave.-75%	Mining	1% decrease Sat. Thickness/ Year	IF 2001 WL <	Present Status
unconfined	-104.2	-99.9	-102.1	Yes	-2.1	-102.6	-103.1	-103.7	Yes	-1	-105.2	DW
unconfined	-73.2	-49.9	-61.6	Yes	-11.7	-64.5	-67.4	-70.3				D
unconfined				Unknown/Yes								DW