

CHEMICAL COMPOSITION OF ~~FORMATION BRINES~~ Deep Basin Brines.

The chemical compositions of brines listed in the following tables were obtained either from the University of Oklahoma, Petroleum Data System Brine file, or from petroleum companies who forwarded these analyses to us along with additional information on drill-stem tests conducted in the Palo Duro Basin. None of the brines were collected or analyzed by the Bureau of Economic Geology consequently only standard industry procedures were employed during their collection.

Substantial outgassing of CO<sub>2</sub> has undoubtedly occurred during sampling (see text) consequently the reported pH is in general too high. As a result, the brines all compute to be supersaturated with respect to calcite. A computer simulation program was used to compute a new pH for Wolfcamp brines, which represents the most likely in situ partial pressure of CO<sub>2</sub> at the calcite phase boundary. It is suggested here that this computed value is representative of the brine pH in the formation and consequently is listed with the analyses in the following tables as "pH<sub>c</sub>". The constraints on the brine chemistry of granite wash aquifers is less well understood; consequently the computed values for pH are not listed pending further investigation. Hydrologic test wells currently being drilled will provide the first brine samples collected by the BEG from the Permian and Pennsylvanian granite wash aquifers.

The wells from which these samples were collected can be located by comparing the underlined TDS values on figures 10 and 11 with those listed in ~~TABLE 1~~ Temperatures are computed using the average geothermal gradient for the region (0.611 °C/100 ft).



Table 8-1.

County	Well No.	Depth	(mg/l)								
Wolfcamp Carbonates	TDS (mg/l)	Temp (°C)	Reported	Ca	Na	Mg	HCO <sub>3</sub>	Cl	SO <sub>4</sub>	pH <sub>c</sub>	
			pH								
Hartley #1	4,469-4,520	164,026	45.6	6.8	1,100.	60,310.	1,069.	302.	88,154.	13,090.	6.59
Potter #1	4,573-5,395	120,000	46.2	7.9	3,660.	40,900.	1,350.	278.	71,600.	2,350.	6.19
Potter #2	4,824-4,875	172,000	47.8	6.8	7,960.	56,200.	1,540.	173.	104,000.	1,600.	6.15
Potter #3	4,790	142,121	47.3	8.8	6,578.	47,193.	841.	106.	85,566.	1,735.	6.40
Moore #1A	3,300-3,310	116,228	38.5	7.0	1,344.	42,692.	510.	82.	64,271.	7,326.	7.00
Moore #1B	3,310-3,315	133,399	38.5	7.0	1,165.	49,185.	697.	401.	73,579.	8,365.	6.50
Moore #2	3,224	132,376	38.0	7.0	1,358.	49,810.	725.	172.	76,090.	5,119.	6.81
Moore #3	3,818	139,493	41.6	7.0	5,657.	45,060.	2,224.	49.	84,610.	1,892.	6.87
Moore #4	3,224	120,953	38.0	7.0	3,800.	41,564.	1,018.	0.	71,300.	2,992.	--
Moore #5	3,224	160,822	38.0	7.0	5,380.	54,905.	1,493.	131.	97,181.	1,729.	6.44
Moore #6A	3,224	180,247	38.0	7.0	3,929.	64,283.	1,284.	171.	107,437.	3,141.	6.41
Moore #6B	3,073-3,274	177,402	37.1	6.9	3,563.	64,177.	898.	73.	105,431.	3,259.	6.82
Moore #7A	3,200	127,058	37.9	7.0	2,347.	45,541.	865.	210.	73,184.	4,908.	6.52
Moore #7B	3,173	150,834	37.7	7.0	2,001.	55,171.	865.	269.	86,718.	5,808.	6.47
Moore #8	3,242	136,984	38.1	7.0	3,205.	47,742.	1,452.	93.	80,700.	3,789.	6.78
Wheeler #1	1,969-2,018	166,835	30.3	6.2	10,024.	49,168.	3,393.	479.	101,920.	1,850.	6.20
Hutchinson #27	2,600	154,115	34.2	7.0	3,183.	54,512.	1,425.	237.	90,877.	3,881.	6.40
Hutchinson #28	3,005	158,938	36.7	7.0	3,942.	55,658.	1,434.	234.	94,651.	3,017.	6.30
Hutchinson #29	3,040	156,592	36.9	7.0	2,811.	56,243.	1,167.	273.	91,839.	4,256.	6.35
Hutchinson #30	3,200	152,562	38.0	7.0	8,586.	47,372.	2,008.	134.	92,561.	1,898.	6.31
Hutchinson #31	3,200	174,353	37.9	7.3	10,870.	52,144.	2,874.	121.	106,614.	1,728.	6.30
Hutchinson #32	3,160	169,457	37.6	7.2	10,961.	49,973.	3,003.	188.	104,228.	1,101.	6.11
Hutchinson #33	3,200	175,373	38.0	7.0	9,767.	54,990.	2,069.	162.	106,729.	1,654.	6.19



Table 8-1 (cont.)

County	Well No.	Depth	(mg/l)									
<u>Wolfcamp Carbonates</u>			<u>TDS</u> (mg/l)	<u>Temp</u> (°C)	Reported <u>pH</u>	<u>Ca</u>	<u>Na</u>	<u>Mg</u>	<u>HCO<sub>3</sub></u>	<u>Cl</u>	<u>SO<sub>4</sub></u>	<u>pH<sub>C</sub></u>
Hutchinson	#34	3,200	168,375	38.0	7.4	21,038.	38,674.	2,978.	135.	104,510.	1,092.	6.11
Hutchinson	#35	3,224	165,968	38.0	7.5	9,964.	50,280.	2,569.	121.	101,093.	1,939.	6.33
Hutchinson	#36	3,224	168,625	38.0	7.7	10,537.	50,277.	2,841.	108.	102,845.	2,014.	6.36
Hutchinson	#37	3,224	167,658	38.0	5.9	9,155.	52,749.	1,982.	54.	101,851.	1,864.	6.37
Hutchinson	#38	3,226	164,801	38.0	6.7	9,496.	50,387.	2,525.	204.	100,268.	1,918.	6.11
Hutchinson	#39	3,224	173,664	38.0	7.5	10,547.	51,871.	3,145.	135.	106,867.	1,098.	6.27
Hutchinson	#40	3,160	174,055	37.6	7.4	11,527.	52,654.	2,033.	188.	106,481.	1,169.	6.09
Hutchinson	#41	2,960	162,794	36.4	7.5	9,701.	50,242.	1,980.	161.	98,991.	1,717.	6.20
Hutchinson	#42	3,224	166,372	38.0	7.2	9,095.	51,183.	2,707.	157.	101,433.	1,795.	6.24
Hutchinson	#43	3,224	177,774	38.0	8.3	8,112.	56,818.	2,653.	135.	108,041.	1,946.	6.33
Hutchinson	#44	3,224	178,885	38.0	8.5	5,550.	61,007.	1,960.	176.	106,027.	2,947.	6.31
Hutchinson	#45	3,224	144,000	38.0	7.5	3,240.	50,200.	1,540.	378.	85,100.	3,100.	7.50 (?)
Hutchinson	#46	3,279	146,000	38.3	7.5	4,000.	50,500.	1,520.	122.	87,600.	2,050.	6.58
Hutchinson	#25	2,978	158,459	36.5	7.0	4,552.	54,444.	1,661.	390.	94,501.	2,911.	6.04
Hutchinson	#1	3,255	149,500	38.2	7.2	6,000.	45,400.	2,300.	261.	85,400.	1,800.	6.25
Hutchinson	#2	3,224	138,000	38.0	8.2	2,500.	48,600.	1,100.	67.	81,400.	4,100.	-- (?)
Hutchinson	#3	3,262	130,100	38.2	8.7	2,700.	43,700.	1,100.	55.	74,300.	3,500.	--
Hutchinson	#4	3,250	144,460	38.2	8.8	2,500.	47,800.	1,000.	92.	80,100.	3,900.	6.85
Hutchinson	#5	3,979	144,000	42.6	8.0	2,480.	52,000.	976.	156.	84,400.	4,000.	--
Hutchinson	#6	3,224	149,000	38.0	7.7	3,600.	52,400.	1,370.	293.	89,000.	2,780.	6.35
Hutchinson	#7	3,237	143,000	38.1	7.6	5,880.	46,300.	2,100.	210.	86,500.	1,850.	6.31
Hutchinson	#8	3,220	141,000	38.0	7.1	6,160.	45,100.	2,210.	278.	85,500.	1,800.	6.38
Hutchinson	#9	3,061	180,473	37.0	7.7	8,757.	57,563.	2,279.	100.	109,707.	1,787.	6.44
Hutchinson	#10	3,224	146,846	38.0	7.0	7,453.	45,984.	2,112.	310.	89,171.	1,781.	7.00



Table <sup>C</sup>~~B~~-1 (cont.)

County	Well No.	Depth	(mg/l)								
Wolfcamp Carbonates	TDS (mg/l)	Temp (°C)	Reported	Ca	Na	Mg	HCO <sub>3</sub>	Cl	SO <sub>4</sub>	pH <sub>c</sub>	
			pH								
Hutchinson #11	3,061	139,767	37.0	7.0	6,137.	45,309.	1,764.	321.	84,335.	1,900.	6.04
Hutchinson #12	3,078	159,397	37.1	7.0	6,504.	52,459.	1,815.	297.	96,241.	2,023.	6.04
Hutchinson #13	3,085	155,587	37.1	7.0	7,694.	49,539.	1,983.	168.	94,464.	1,736.	6.24
Hutchinson #14	3,224	166,090	38.0	7.0	4,213.	58,037.	1,524.	238.	98,954.	3,122.	6.26
Hutchinson #15	3,001	163,370	36.6	7.0	5,798.	55,275.	1,954.	0.	98,303.	2,146.	--
Hutchinson #16	2,990	160,349	36.5	7.0	5,834.	55,337.	1,556.	276.	98,517.	2,121.	6.11
Hutchinson #17	2,888	162,272	36.0	7.0	3,967.	56,885.	1,419.	657.	96,284.	3,057.	7.00
Hutchinson #18	3,187	154,448	37.8	7.0	7,047.	49,395.	2,246.	51.	93,803.	1,903.	6.80
Hutchinson #19	3,213	160,349	37.9	7.0	6,192.	52,308.	2,139.	171.	97,423.	2,114.	6.30
Hutchinson #20	8,078	144,225	67.7	7.0	5,885.	47,466.	1,643.	269.	87,081.	1,831.	7.00
Hutchinson #21	2,398	143,000	32.9	7.8	1,860.	52,400.	820.	396.	82,300.	5,400.	6.47
Hutchinson #22	3,224	142,000	38.0	8.1	1,860.	52,100.	783.	299.	81,900.	5,300.	6.50
Hutchinson #23	3,297	144,000	38.4	8.3	1,920.	52,600.	820.	293.	83,000.	5,150.	6.56
Hutchinson #24	3,278	144,000	38.3	8.1	1,920.	52,500.	820.	366.	82,600.	5,300.	6.48
Ochiltree #1	3,746	188,523	41.2	7.2	6,358.	63,785.	2,068.	171.	114,166.	1,975.	6.26
Carson #1	3,060	178,000	37.0	7.1	7,850.	76,752.	2,350.	58.	89,700.	1,290.	6.73
Floyd #1	6,598	240,575	58.6	6.3	6,234.	84,667.	1,782.	132.	146,281.	1,053.	6.26
Floyd #2	5,800-5,900	111,829	53.7	6.7	5,560.	34,600.	1,848.	581.	65,600.	3,640.	6.70
Hall #1	3,831	248,006	41.7	6.2	32,340.	58,579.	2,245.	56.	153,982.	517.	6.33
Hansford #1A	3,157	158,971	37.6	7.6	2,304.	58,428.	860.	337.	96,251.	572.	6.30
Hansford #1B	3,240	173,421	38.1	7.3	5,159.	60,396.	1,188.	190.	104,484.	1,789.	6.28
Hansford #2	3,077	102,260	37.1	7.4	1,114.	37,153.	573.	745.	55,685.	6,776.	6.27
Hansford #3	3,060	144,322	37.0	7.3	1,794.	52,627.	729.	363.	78,721.	10,085.	6.40
Hemphill #1	4,365	268,178	45.0	6.7	4,058.	99,139.	1,177.	106.	162,710.	968.	6.53



Table B-1 (cont.)

County	Well No.	Depth	(mg/l)									
			Reported									
			TDS (mg/l)	Temp (°C)	pH	Ca	Na	Mg	HCO <sub>3</sub>	Cl	SO <sub>4</sub>	pH <sub>c</sub>
<u>Wolfcamp Carbonates</u>												
Roberts #1	3,550		184,280	40.0	6.5	25,792.	22,530.	14,160.	110.	121,360.	329.	6.25
Roberts #2	3,552		174,600	40.0	6.9	11,014.	51,287.	3,406.	230.	107,666.	975.	6.02
Roberts #3	3,538		223,281	39.9	7.8	6,906.	76,807.	2,098.	92.	135,338.	1,953.	6.50
Motley #1	3,131-3,156		106,286	37.4	6.7	4,927.	33,177.	1,933.	99.	63,800.	2,350.	6.63
Motley #2A	4,200		124,316	44.0	6.6	19,948.	22,396.	2,940.	342.	76,735.	1,951.	6.60
Motley #2B	4,157		129,955	43.7	6.7	22,592.	20,561.	3,699.	264.	80,721.	2,115.	6.70
Sherman #1A	3,007		106,739	36.7	7.1	3,603.	35,970.	1,124.	90.	62,426.	3,523.	6.76
Sherman #1B	3,040		111,715	36.9	6.9	4,209.	36,502.	1,527.	157.	65,796.	3,428.	6.47
Sherman #1C	3,040		93,867	36.9	7.0	3,403.	30,849.	1,176.	77.	52,948.	5,411.	6.85
Sherman #2A	3,032		178,281	36.8	7.4	1,368.	66,430.	469.	127.	95,338.	14,546.	6.95
Sherman #2B	3,032		180,200	36.8	7.8	1,224.	66,853.	769.	254.	96,520.	14,576.	6.70
Sherman #2C	3,032		190,868	36.8	7.3	1,164.	71,240.	728.	231.	103,435.	14,068.	6.76
Sherman #2D	3,032		174,224	36.8	7.5	1,462.	42,360.	668.	184.	38,197.	13,931.	6.80
Sherman #3	2,997		107,317	36.6	6.7	3,394.	35,907.	1,457.	45.	62,862.	3,650.	6.70
Sherman #4A	3,139		339,529	37.5	6.6	14,686.	112,163.	3,474.	72.	208,221.	910.	6.38
Sherman #5A	2,842		185,592	35.7	8.0	4,787.	64,972.	1,644.	6.	111,096.	3,085.	-- (?)
Sherman #5B	2,842		184,650	35.7	5.9	4,683.	64,600.	1,714.	26.	110,507.	3,117.	5.90
Sherman #4B	3,139		194,385	37.5	7.8	2,800.	70,116.	1,789.	149.	114,175.	5,352.	6.62
Sherman #6A	3,046		201,359	36.9	7.0	3,303.	73,307.	1,232.	109.	119,305.	4,100.	6.68
Sherman #6B	3,046		199,027	36.9	6.8	3,965.	71,668.	1,248.	54.	118,140.	3,949.	6.94
Sherman #6C	3,046		208,477	36.9	7.6	3,404.	75,747.	1,392.	112.	123,660.	4,153.	6.66
Sherman #6D	3,046		202,323	36.9	7.3	3,590.	73,130.	1,386.	98.	119,939.	4,177.	6.70
Sherman #6E	3,046		223,712	36.9	7.3	7,818.	75,913.	2,220.	82.	135,956.	1,721.	6.54
Sherman #6F	3,305		210,249	38.5	7.1	7,665.	70,951.	2,106.	47.	127,656.	1,818.	6.78



Table 8-1 (cont.)

County	Well No.	Depth	(mg/l)									
			TDS (mg/l)	Temp (°C)	Reported	Ca	Na	Mg	HCO <sub>3</sub>	Cl	SO <sub>4</sub>	pH <sub>C</sub>
					pH							
Wolfcamp Carbonates												
Sherman	#6G 3,305		214,484	38.5	6.5	7,558.	72,945.	1,972.	20.	130,164.	1,822.	6.50
Sherman	#6H 3,305		227,980	38.5	7.2	8,038.	77,549.	2,086.	96.	138,419.	1,789.	6.44
Sherman	#7A 3,361		235,831	38.8	7.1	9,571.	78,096.	2,671.	96.	143,898.	1,495.	6.40
Sherman	#7B 3,361		232,688	38.8	7.0	9,439.	76,761.	2,887.	152.	142,044.	1,493.	6.21
Sherman	#7C 3,361		230,970	38.8	6.1	10,262.	75,007.	2,955.	9.	141,237.	1,502.	6.10
Sherman	#7D 3,361		340,432	38.8	6.8	1,452.	129,734.	1,651.	46.	206,593.	935.	6.80
Sherman	#8 2,973		134,646	36.5	6.8	3,323.	45,176.	2,356.	124.	78,414.	5,250.	6.68
Sherman	#9A 3,084		230,776	37.1	7.1	9,114.	76,707.	2,609.	55.	140,782.	1,507.	6.67
Sherman	#9B 3,084		231,294	37.1	6.9	9,284.	76,615.	2,678.	51.	141,113.	1,550.	6.70
Sherman	#9C 3,084		231,238	37.1	8.9	6,946.	76,352.	2,910.	41.	141,544.	1,174.	6.89
Sherman	#10 3,469		247,757	39.5	6.2	9,751.	77,408.	6,016.	27.	152,662.	1,889.	6.20
Sherman	#11A 3,330		193,111	38.6	7.8	2,820.	70,178.	1,416.	142.	113,280.	5,272.	6.62
Sherman	#11B 3,330		198,820	38.6	7.3	2,687.	72,117.	1,688.	95.	116,665.	1,206.	6.81
Sherman	#11C 3,330		198,488	38.6	6.3	2,993.	70,837.	2,238.	130.	116,966.	5,323.	6.66
Sherman	#11D 3,330		195,470	38.6	7.4	2,688.	73,253.	1,552.	136.	114,571.	5,502.	6.66
Sherman	#12 2,839		198,208	35.6	7.0	14,543.	47,828.	9,209.	38.	125,595.	995.	6.83
Sherman	#13A 3,214		167,404	37.9	7.0	1,290.	62,286.	681.	125.	92,701.	10,321.	6.98
Sherman	#14 3,250		145,495	38.2	7.0	1,776.	53,592.	663.	21.	82,639.	6,804.	7.00
Sherman	#13B 3,189		167,404	37.8	7.0	1,288.	62,293.	685.	116.	92,710.	10,312.	7.00
Sherman	#9D 3,084		232,078	37.1	7.0	9,017.	77,633.	2,404.	55.	141,386.	1,581.	6.67
Lamb	#1 7,352-7,404		173,200	63.1	6.4	15,120.	46,607.	3,072.	195.	106,500.	1,700.	6.40
Crosby	#1 4,363-4,439		105,214	44.9	8.6	6,880.	30,143.	2,246.	139.	62,891.	2,913.	6.35
Crosby	#2 7,650-7,683		230,710	64.8	7.3	8,164.	80,271.	992.	187.	140,729.	365.	7.31



County Well No. Depth

		(mg/l)									
<u>Wolfcamp Carbonates</u>		<u>TDS (mg/l)</u>	<u>Temp (°C)</u>	<u>Reported pH</u>	<u>Ca</u>	<u>Na</u>	<u>Mg</u>	<u>HCO<sub>3</sub></u>	<u>Cl</u>	<u>SO<sub>4</sub></u>	<u>pH<sub>C</sub></u>
Hockley #1	8,904-8,990	226,254	73.0	6.9	3,823.	83,135.	884.	333.	137,190.	588.	6.90
Hockley #2	8,634-8,676	71,811	71.2	6.4	4,687.	18,907.	2,534.	652.	42,777.	2,252.	6.40
Hockley #3	8,546-8,626	50,595	70.8	7.2	1,840.	16,347.	488.	927.	27,300.	3,400.	7.20
Hockley #4	9,642-9,648	87,741	77.2	6.6	3,286.	29,581.	648.	801.	51,304.	2,120.	6.60
W.F. Motley #3	2,970-3,022	124,800	36.6	7.5	3,920.	46,112.	1,972.	296.	71,050.	1,450.	



County	Well No.	Depth	(mg/l)							
Granite Wash	TDS (mg/l)	Temp (°C)	Reported	Ca	Na	Mg	HCO <sub>3</sub>	Cl	SO <sub>4</sub>	
			pH							
Hartley	6,140-6,158	189,119	55.8	5.7	9,721.	61,511.	1,422.	41.	115,360.	1,142.
Oldham	7,122-7,143	219,091	61.8	5.5	9,600.	73,490.	1,380.	61.	133,660.	960.
Moore	3,465	141,291	39.5	6.6	10,143.	41,917.	1,487.	72.	85,259.	2,304.
Moore	3,461	143,568	39.5	6.3	10,152.	42,725.	1,595.	13.	87,277.	1,724.
Moore	3,466-3,472	141,737	40.0	7.9	7,710.	36,347.	1,105.	53.	72,000.	1,280.
Moore	3,490	145,330	39.6	7.0	9,067.	44,756.	1,575.	130.	89,163.	637.
Moore	3,851-3,871	138,365	41.8	6.8	10,502.	40,876.	1,275.	66.	84,561.	1,034.
Hutchinson	3,105-3,117	183,045	37.3	7.0	7,847.	59,778.	2,250.	83.	112,528.	67.
Wheeler	6,554-6,569	251,103	58.3	6.4	35,017.	56,938.	2,138.	42.	156,025.	492.
Wheeler	9,148-9,375	208,575	75.2	5.8	15,300.	60,253.	2,500.	116.	129,000.	176.
Wheeler	8,279-8,283	222,672	68.9	5.5	15,000.	65,759.	2,940.	18.	138,000.	5.
Wheeler	8,038-8,044	232,772	67.4	5.5	19,000.	65,840.	2,240.	12.	144,000.	130.
Wheeler	8,308-8,366	254,978	69.1	5.1	16,678.	77,789.	2,845.	8.	157,657.	0.
Wheeler	8,491-8,530	255,653	70.2	4.5	17,355.	76,431.	3,415.	0.	158,393.	46.
Wheeler	7,978-8,018	254,600	67.0	6.4	20,143.	73,894.	2,818.	72.	157,657.	13.
Wheeler	10,985-11,057		85.6	5.2	21,400.	60,266.	2,640.	49.	143,000.	7.
Wheeler	7,300	249,657	62.9	5.4	16,678.	74,801.	3,393.	4.	154,770.	10.
Wheeler	7,473	223,986	63.9	5.2	16,718.	66,129.	2,401.	17.	138,182.	536.
Wheeler	8,300	152,922	69.0	5.9	11,725.	44,603.	1,779.	74.	94,551.	187.
Wheeler	7,500	243,131	64.1	5.4	15,160.	73,134.	3,878.	11.	150,912.	34.
Wheeler	7,260-7,385	191,056	63.0	6.2	14,100.	55,884.	2,490.	137.	118,000.	445.
Wheeler	7,904-7,940	211,466	66.7	5.8	14,600.	62,038.	2,850.	110.	131,000.	48.
Wheeler	7,444	251,379	63.8	5.4	16,692.	74,647.	3,953.	13.	156,060.	11.
Wheeler	7,482	226,228	64.0	5.3	18,000.	65,246.	2,661.	11.	140,056.	252.



County	Well No.	Depth	(mg/l)							
Granite Wash	TDS (mg/l)	Temp (°C)	Reported	Ca	Na	Mg	HCO <sub>3</sub>	Cl	SO <sub>4</sub>	
			pH							
Wheeler	7,708-7,767	245,021	65.6	5.2	15,883.	73,658.	3,510.	25.	151,932.	11.
Wheeler	7,708-7,767	246,904	65.6	5.1	15,998.	74,310.	3,487.	17.	153,083.	6.
Wheeler	7,475	261,453	64.0	5.3	20,952.	75,566.	2,868.	13.	161,796.	256.
Wheeler	7,453	210,999	63.8	5.1	16,964.	60,921.	2,302.	49.	130,410.	351.
Gray	5,545	232,049	52.2	7.0	4,960.	83,454.	1,555.	183.	141,828.	69.
Gray	5,162-5,178	203,082	49.8	7.3	6,080.	71,120.	1,361.	171.	124,100.	250.
Gray	9,558-9,569	211,932	76.7	7.0	14,945.	63,856.	2,134.	34.	130,927.	474.
Gray	8,808-8,031	214,633	72.1	5.8	13,121.	66,093.	2,729.	49.	132,574.	65.
Gray	2,808-2,987	235,510	35.5	5.3	21,104.	64,781.	3,122.	0.	146,408.	0.
Gray	2,908	224,286	36.1	5.3	17,358.	64,097.	3,330.	13.	139,365.	0.
Gray	2,908	224,286	36.1	5.3	17,358.	64,097.	3,330.	13.	139,365.	0.
Gray	2,950	199,804	36.2	4.9	13,171.	59,885.	2,826.	0.	123,920.	0.
Gray	3,000	210,221	36.6	4.4	13,699.	70,529.	2,407.	0.	122,819.	0.
Gray	2,950	201,628	36.3	4.4	12,598.	61,952.	2,355.	0.	124,722.	0.
Gray	3,085	244,775	37.2	7.4	2,195.	68,149.	2,685.	27.	151,816.	180.
Gray	7,720	108,904	65.5	6.6	6,158.	34,228.	1,339.	64.	67,562.	38.
Gray	>7,720	214,044	65.5	5.0	11,920.	66,943.	2,711.	34.	132,283.	28.
Gray	3,215	209,853	37.9	6.1	19,364.	55,025.	3,015.	12.	132,434.	91.
Gray	3,014	223,802	36.7	4.3	19,613.	62,027.	2,992.	0.	138,914.	255.
Gray	3,142	210,995	37.5	5.6	19,436.	56,817.	3,197.	6.	130,816.	720.
Gray	3,110	213,507	37.3	4.0	19,365.	57,895.	3,197.	0.	132,436.	612.
Gray	3,110	192,374	37.3	4.3	18,521.	50,588.	3,141.	0.	119,517.	605.
Gray	3,100	200,182	37.2	6.2	13,761.	58,978.	3,094.	12.	124,335.	0.
Gray	3,080	201,030	37.1	6.6	13,299.	60,015.	2,963.	12.	124,738.	0.