

DRAFT Recommended informal criteria for evaluating applications in the Southern Jornada del Muerto Basin, Lower Rio Grande Underground Water Basin

The Southern Jornada del Muerto Basin (SJMB) is a sub-area located entirely within the Lower Rio Grande Underground Water Basin (LRG) declared by State Engineer Special Order 126 on September 11, 1980. The SJMB is shown on figure 2 of State Engineer Office Special Projects Report SPDS-96-02. The SJMB should be administered based on a 40-year planning period beginning in 2000. To quantify impacts a groundwater flow model developed by John Shomaker and Associates may be used, or other methods as deemed appropriate.

Administrative standards and criteria for offset of surface-water depletions on the Rio Grande stream system published as the Mesilla Valley Administrative Area Guidelines for Review of Water Right Applications should be applied to estimated impacts from applications in the SJMB. Depletions can be estimated using the Shomaker groundwater flow model. Drawdowns can be estimated using the model or the Theis equation.

Water level declines due to existing wells and water rights should be considered along with water level declines due to a proposed application. Impacts will be estimated to the beginning of 2040 for existing and proposed wells, and to provide a conservative analysis to protect existing rights, generally the assumption will be that the proposed well would start pumping at the beginning of 2000. Table 1 presents a reasonable estimate of future water use due to existing rights in the SJMB, and should be used to estimate water level declines due to existing wells and water rights. The computed water level declines from an approved permit will be added to existing declines, and the well to be drilled under the permit becomes an existing well in considering subsequent applications.

It is assumed that water quality in the freshwater zone in the SJMB will remain fresh if drawdowns do not exceed one-half of the freshwater zone thickness (the recoverable freshwater thickness). Water level decline rates should be limited to reserve one-half of the recoverable freshwater thickness for uses beyond the 40-year planning period. The total water level decline rate should not exceed 3.5 feet per year (ft/yr) in any model cell. The allowable water level decline due to a proposed use can be calculated as follows:

$$A = (FW)/4t - E$$

where: A is the allowable additional water level decline rate due to the proposed use (ft/yr), FW is the freshwater zone thickness of the 1980s (feet) at the location of interest, t is 40 years, and E is the water level decline rate due to exercise of existing rights (ft/yr). Total decline shall be 3.5 ft/yr or A, whichever is less. Model cells with decline rates of greater than 3.5 ft/yr should be considered "critical". New appropriations may be granted provided they do not produce a decline rate of greater than 0.1 ft/yr on any critical cell. No new appropriations should be allowed in critical cells unless the impact is 0.1 ft/yr or less. Wells should not be completed to a depth of more than 50 percent of the freshwater thickness. Freshwater thickness can be estimated from plate 15 of New Mexico State Engineer Technical Report 43 (Wilson and others, 1981), or from site-specific data.

Table 1. Summary of existing rights and pending applications in the Southern Jornada Basin (through LRG-5341).

OSE file number	Owner name	Use ^a	Type	Diversion (acre-feet/year)		Remarks
				Permitted, declared, applied for	Amount simulated in model	
LRG-47	Jornada Water	UTL	Permit	552.0	552.0	Full pumping in 2000
LRG-65	Organ Water	MDW	Permit	295.18	295.18	Full pumping in 2000
LRG-83	Eastman	MUN	Permit	9.0	9.0	Full pumping in 2000
83-A,B,C	Gariano	MUN	Declaration	81.0	81.0	Full pumping in 2000
LRG-86	Ferguson/Lotz	DOM	Declaration	3.0	3.0	Full pumping in 2000
LRG-88	Smith/Harvey	DOM	Declaration	10.0	10.0	Full pumping in 2000
LRG-89	Hoihjelle	DOM	Declaration	3.0	3.0	Full pumping in 2000
LRG-90	Calderon	COM	Declaration	282.0	75.0	3.75 af/ac on 20 acres
LRG-370	Moongate Water	MDW	Permit	1,875.0	1,875.0	Linear increase from 781.39 ac-ft in 2000 to 1,875 ac-ft in 2044
LRG-370-B	Parker	MDW	Permit	250.0	0.0	Permit cancelled
LRG-371	Moongate Water	MDW	Permit	736.54	736.54	Full pumping in 2000
LRG-391	First Nat'l Bank	COM	Declaration	75.0	0.0	Based on field check
LRG-403	Petrowsky	IRR	Declaration	8.0	8.0	Full pumping in 2000
LRG-410	Botschen	DOM	Declaration	0.5	0.5	Full pumping in 2000
LRG-418	Grooms	IRR	Declaration	31.5	31.5	Full pumping in 2000
LRG-430-S-26, S-28, S-29, S-30	City of Las Cruces	MUN	Permit	6,192.0	3,300.0	Assumes no S-26/S-28 per WRD; S-29/S-30 as permitted
LRG-451	Moongate Water	MDW	Application	370.0	370.0	Linear increase from 24.85 ac-ft in 2000 to 1,110 ac-ft in 2039
LRG-452	Moongate Water	MDW	Application	370.0	370.0	
LRG-453	Moongate Water	MDW	Application	370.0	370.0	
LRG-479	Moongate Water	MDW	Application	370.0	370.0	Linear increase from 24.85 ac-ft in 2000 to 740 ac-ft in 2039
LRG-480	Moongate Water	MDW	Application	370.0	370.0	
LRG-532	Moongate Water	MDW	Application	350.0	350.0	Linear increase from 24.85 ac-ft in 2000 to 700 ac-ft in 2039
LRG-533	Moongate Water	MDW	Application	350.0	350.0	
LRG-501	Americana Prop.	IRR	Declaration	2,240.0	871.5	3.5 af/ac on 249 acres
LRG-508	Davison	DOM	Declaration	1.2	3.0	Based on field check by Water Rights Div.
LRG-509	Davison	MDW	Declaration	52.0		
LRG-517 and 517-S	City of Las Cruces	MDW	Declaration	774.0	0.0	To be withdrawn
LRG-519	Hayslett	IRR	Declaration	70.0	70.0	Full pumping in 2000
LRG-530	Hayslett	IRR	Declaration	70.0	70.0	Full pumping in 2000
LRG-559	Lackey	IRR	Declaration	21.0	3.0	Based on field check
LRG-567	Stiles	IRR	Declaration	4.2	4.2	Full pumping in 2000
LRG-568	Villarrial	IRR	Declaration	10.5	10.5	Full pumping in 2000
LRG-573	Wilson	IRR	Permit	70.0	70.0	Full pumping in 2000
LRG-608	Cragin	IRR	Declaration	15.0	15.0	Full pumping in 2000
LRG-713	Harvey	IRR	Declaration	90.0	3.0	Based on field check by Water Rights Division
LRG-714	Harvey	IRR	Declaration			
LRG-715	Harvey	IRR	Declaration			
LRG-743	Smith	IRR	Application	180.0	0.0	All applications denied 10/09/01
LRG-744	Smith	IRR	Application			
LRG-745	Smith	IRR	Application			
LRG-822	Wurgler	IRR	Declaration	65.2	0.0	Based on field check

Table 1. Summary of existing rights and pending applications in the Southern Jornada Basin (through LRG-5341) (concluded).

OSE file number	Owner name	Use ^a	Type	Diversion (acre-feet/year)		Remarks
				Permitted, declared, applied for	Amount simulated in model	
LRG-827	Miller	IRR	Declaration	12.0	12.0	Full pumping in 2000
LRG-829	Mountain View	MDW	Permit	19.96	19.96	Full pumping in 2000
LRG-935	Jornada Water	UTL	Permit	150.0	150.0	Full pumping in 2000
LRG-1148	Lopez	MOB	Permit	9.0	9.0	Full pumping in 2000
LRG-1160	Wurgler	IRR	Permit	70.87	70.87	Full pumping in 2000
LRG-1796	Mountain View	MDW	Permit	252.0	252.0	Full pumping in 2000
LRG-1796-S-4 (Enlgd)	Mountain View	MDW	Application	370.0	120.0	Expected partial approval per WRD
LRG-2056	Newman	IRR	Permit	7.50	7.50	Full pumping in 2000
LRG-3283	Las Cruces	MUN	Permit	700.0	700.0	Permitted schedule
LRG-3284	Las Cruces	MUN	Permit	450.0	450.0	Permitted schedule
LRG-3285	Las Cruces	MUN	Permit	450.0	450.0	Permitted schedule
LRG-3288	Las Cruces	MUN	Permit	800.0	800.0	Permitted schedule
LRG-3289	Las Cruces	MUN	Permit	800.0	800.0	Permitted schedule
LRG-3290	Las Cruces	MUN	Permit	1,000.0	1,000.0	Permitted schedule
LRG-3291	Las Cruces	MUN	Permit	1,000.0	1,000.0	Permitted schedule
LRG-3292	Las Cruces	MUN	Permit	1,000.0	1,000.0	Permitted schedule
LRG-3293	Las Cruces	MUN	Permit	1,000.0	1,000.0	Permitted schedule
LRG-3294	Las Cruces	MUN	Permit	1,000.0	1,000.0	Permitted schedule
LRG-3295	Las Cruces	MUN	Permit	1,000.0	1,000.0	Permitted schedule
LRG-3296	Las Cruces	MUN	Permit	1,000.0	1,000.0	Permitted schedule
LRG-3589	Keeling	IRR	Declaration	224.0	120.0	3.75 af/ac on 32 acres
LRG-3642	Osborn	SUB	Declaration	483.8	483.8	Full pumping in 2000
LRG-3819	Butterfield Park	MDW	Permit	354.2	354.2	Full pumping in 2000
LRG-3820	Greene	SUB	Declaration	60.0	60.0	Full pumping in 2000
LRG-4366	Isaacs	STK	Declaration	20.0	20.0	Full pumping in 2000
LRG-4367	Isaacs	STK	Declaration	20.0	20.0	Full pumping in 2000
LRG-4394	Hopkins	MDW	Declaration	87.0	87.0	Full pumping in 2000
LRG-4745	Hopkins	SUB	Permit	48.0	48.0	Full pumping in 2000
LRG-5039	Mesa Dev. Cntr.	MDW	Permit	967.8	105.2	Based on actual use
LRG-5341	Butterfield Park	MDW	Application	371.0	15.0	Expected partial approval per WRD
LRG-5360	Pettes	IRR	Declaration	195.0	195.0	Full pumping in 2000
LRG-5914	Sorrell	MUL	Declaration	35.0	15.0	Based on field check
LRG-5915	Rubio	IRR	Declaration	45.0	15.0	Based on field check
LRG-6369	NASA-WSTF	MIL	Permit	1,000.0	1,000.0	Full pumping in 2000
LRG-8412, 8412-A	Dona Ana Co.	IRR	Declaration	1,430.8	0.0	No use since 1970
TOTALS				33,048.95	24,028.65	

^aCOM=commercial; DOM=domestic; IRR=irrigation; MDW=mutual domestic; MIL=military; MOB=mobile home park; MUL=multi domestic; MUN=municipal; STK=livestock watering; SUB=subdivision; UTL=utility.