Table 7A-2: Proposed MRGCD and Small Sandoval Irrigation Systems Metering Program: Improvements to System Irrigation Efficiency

All land, water, crop and cost numbers presented in this table are based on published documents or data from agencies, many of which use estimates or placeholder assumptions to assign values. These values are based in part on empirical data (measurements, studies) however, they should not be considered as measured data. Therefore, the results of this analysis should be viewed as conceptual only and not as factual. Specific, more accurate data needs include, cropped acreages, crop irrigation requirements, on- and off-farm efficiency coefficients. References for all source documents have been provided.

Assumptions and Notes

1 Improved metered and controlled irrigation flow is estimated to allow a **10%** system efficiency (applied as 5% improvement in each on- and off-farm efficiency)
Kay, Melvin, *Surface Irrigation: Systems and Practice*, Cranfield Press, 1986, page 39 (10-20%)

2 Irrigated acreages and efficiencies (E_f, E_c, and E_j): Irrigated acreage - MRGCD (2000) Efficiencies and coefficients - Wilson, B. (1999) (1997)

Consumptive Irrigation Requirement (CIR) 2.2 acre-feet/acre — ***for MRGCD system***: S.S. Papadopulos & Assoc., Inc., *MRGCD Efficiency and Metering Program*, NM Interstate Stream Commission, December 2002

(CIR values should be viewed at estimates not measured values) 1.13 acre-feet/acre — ***for small Sandoval systems***: Wilson, B., *Water Use by Categories in NM Counties and River Basins and Irrigated Acreage, 1999*

(Note Wilson, B., NM OSE, Tech. Report #49 - Consumptive Irrigation Use reported as 1.678 acre-feet per acre

3 See Table A9-4 and A9-5 for irrigation system efficiency calculation

4 Exercise accounting attempts to exclude any return flows from upstream irrigated areas being counted as diversion water on downstream areas (See Note 1. Table 9A-2)

5 In column 7, incidental off-farm depletions (ID) are subtracted from possible diversion water reduction. ID coefficient from Wilson, B. (1999)

6 It is assumed that irrigated areas include fallow but note idle lands

#	County / System	Reported Irrigated Area (2001)	Existing Consumptive Irrigation Requirement	Existing Total System Diversion Requirement	Existing System Irrigation Efficiency (Ej)	Diversion Water Reduction Due to Adoption of Fixed Irrigation Schedule, Better System Operations	Resultant System Diversion Requirement	Resultant System Irrigation Efficiency (Ej)
1	*2*	*3*	*4*	*5*	*6*	*7*	*8*	*9*
		acres	acre-feet	acre-feet	%	acre-feet	acre-feet	%
1	Sandoval (MRGCD)	6,733	14,813	48,218	30.7%	5,260	42,958	34.5%
2	Bernalillo (MRGCD)	12,870	28,314	92,168	30.7%	10,397	81,771	34.6%
3	Valencia (MRGCD)	30,938	68,064	212,699	32.0%	25,865	186,833	36.4%
4	Small Systems - Sandoval County	4,639	5,242	14,977	35.0%	1,281	13,696	38.3%
	Totals	**55,180**	**116,432**	**368,062**	31.6%	**42,803**	**325,259**	35.8%

	Before	After
Study area irrigation efficiency (Ej)	**31.6%**	**35.8%**