

IRRIGATION COST REDUCTION AND ENERGY CONSERVATION THROUGH
UPGRADING OF PUMPING PLANTS

by

George H. Abernathy
Professor and Department Head
Agricultural Engineering Department

and

Charles M. Hohn
Extension Agricultural Engineer
Cooperative Extension Service

TECHNICAL COMPLETION REPORT

Project No. 1423615

December 1985

New Mexico Water Resources Research Institute

in cooperation with

New Mexico Cooperative Extension Service

and

Department of Agricultural Engineering
New Mexico State University

The research on which this project is based was financed by the New Mexico Interstate Streams Commission with some initial funding by the Four Corners Regional Commission.

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ABSTRACT

Since 1974 the cost of pumping irrigation water in New Mexico has escalated much faster than the inflation rate. This rapidly increasing cost has contributed to farmers' economic problems since they are unable to negotiate higher prices for their product. One response is to insure that pumps and power units are operating as efficiently as possible. This project provided a testing service to help farmers determine the efficiency of their pumping units and to suggest means of improving the efficiency. During this project (1982-1985), a total of 685 pump efficiency tests were conducted in all of the major pump irrigated areas of the state. Results of the tests show that pump efficiency has not increased greatly since testing began under another project in 1976. The most remarkable results occur on an individual basis when a farmer overhauls or replaces a low efficiency pump with a more efficient unit. This project reveals a definite need to increase engineering efforts in the selection and operation of irrigation pumps.

Keywords: Irrigation pumping, pump efficiency, pumping costs, pump testing

JUSTIFICATION

From 1974 to 1985, the cost of irrigation pumping fuel rose ninefold for natural gas (\$.40/mcf to \$3.60/mcf) and fourfold for electricity (\$.02/kwh to \$.08/kwh). Natural gas is now priced well below other fuels based on the cost per heating unit so further increases can be expected. These price increases are difficult for farmers to absorb because the price of raw agricultural products has not changed significantly during the same period. This problem of escalating costs is particularly acute in the High Plains areas of New Mexico because pumping depths and consequently costs are among the highest in the state. Also, much of the High Plains area draws water from the Ogallala Formation, which is being rapidly depleted. This depletion means that the future of irrigation farming is limited thereby restricting the farmer's flexibility in purchasing alternate-fuel pumping engines. The only solution that can presently be offered is to assist farmers in obtaining the best pumping plant efficiencies possible and to apply the water through an efficient distribution system. This project only considered pumping plant efficiencies.

There are approximately 12,000 irrigation pumps in the state using the equivalent of 10 million mcf (thousands of cubic feet) of natural gas annually for irrigation. A recent survey (Abernathy et al. 1978) indicated that the average pump efficiency was about 52 percent and the average power unit (internal combustion engine) efficiency was approximately 21 percent. Because overall efficiency is the product of pump and power unit efficiencies, overall efficiencies averaged around 11 percent. Those pumps that were in good condition averaged 60 percent efficiency with the engines averaging 25 percent, yielding an overall 15 percent pumping-plant efficiency. Upgrading all pumps

to a 15 percent efficiency would save one-third of the natural gas now being used for pumping in New Mexico. Gas savings represent a direct saving to the farmer in pumping costs. In contrast, tests of electric-powered units showed slightly higher pump efficiencies. However, previous testing also indicates considerable potential for improving the performance of electric powered pumps mainly by pump replacement or overhaul since electric motor efficiency is fairly constant.

A previous research project entitled "Improving the Energy Conversion Efficiency of Natural-Gas Powered Pumping Plants," (Abernathy et al. 1978) accomplished the task of making farmers aware of pumping plant efficiency and its cost-saving potential. In a follow-up program, sponsored by the New Mexico Energy Extension Service, additional testing was made possible. Similar pump testing programs have been initiated in Colorado, Texas, Nebraska and California.

The objectives of the project were to:

1. Reduce irrigation cost and conserve pumping fuel through on-site evaluation of irrigation pumping plants and distribution systems;
2. Perform on-site adjustments to reduce operating costs by optimizing the tuning of internal combustion engines;
3. Recommend major repairs or replacement of power units and pumps where test results indicate substandard performance; and
4. Disseminate information on irrigation costs to farmers through normal Cooperative Extension Service methods.

METHODOLOGY

To achieve these objectives a van was modified to support test evaluation equipment. The van included equipment to measure static and dynamic pumping

lift, pumping rate and energy input. The van closely resembled the unit employed by the Texas High Plains Underground Water Conservation District No. 1 (Smith, undated). Most of the test equipment was on hand in the New Mexico State University Agricultural Engineering Department. However, some of the equipment needed to be renovated and updated.

A test crew consisted of an agricultural engineer and a student or technician. Cooperating farmers were scheduled by county Extension agents. The on-site procedure consisted of running an overall test on the cooperating farmer's pumping system. Project personnel measured the fuel rate, the rate of water being pumped, and the pumping depth to determine the overall plant efficiency. For internal-combustion engine pumping plants, if the efficiency was above 12 percent (16 percent for diesels), no further tests were run because all components would have had to have been in reasonably good condition to achieve this efficiency. Minor adjustments, such as engine timing and air-fuel ratio, were made if the initial test determined such adjustments would result in fuel savings. In those cases where overall pump efficiency was below 12 percent, a torque meter was installed in the drive line and a complete evaluation of the pumping system was made to determine what equipment was causing the low efficiency. This complete test pinpointed engine or pump efficiencies that were low, and recommendations for replacement or repair were made directly to the farmer.

For electric plants, only an overall test was possible. Overall efficiencies below 50 percent normally indicated that pump work was needed. Such low efficiencies can be caused by metering errors and poor motor selection but such effects are rare.

Emphasis in this program was the upgrading of the irrigation pumping plants. In those cases where efficiency was low, the farmers were encouraged

to make repairs promptly. The project crew was available to return and retest the unit after repairs had been made.

RESULTS

Results of the pump testing program are presented in tables 1 through 4. Table 1 shows that in 1982 a total of 122 tests were made in the High Plains counties of Curry, Lea and Roosevelt. In addition, some testing was done in Dona Ana and De Baca counties. The number of tests conducted in 1982 was decreased because of extremely wet weather on the east side of the state which prevented the pump crew from operating for several weeks. Because the testing program had not operated since 1976, the 1982 program required training new personnel on the procedures and reorganizing the equipment. Of the tests conducted in Curry County, most were of the electric type with less demand for testing of natural gas engines. Average overall plant efficiencies for electric motor driven free discharge pumps was 50.2 percent which was reasonably good but pressurized pumps averaged 61 percent efficiency which is excellent. The overall efficiency of natural gas engines ranged from 16 to 17 percent which is quite low. Cost of pumping water per unit of water was extremely close with the per acre-foot cost varying from \$27.75 to about \$31.47 for the various fuels and delivery systems. In De Baca County, all of the units tested were natural gas powered. There were 15 free discharge units and seven pressurized systems. The fuel costs for pumping water ranged from \$27.69 for the free discharge systems to \$49.94 for the pressurized systems tested. Fuel cost per foot of lift was extremely high for the free discharge units approaching \$.20 per acre-foot per foot of lift. In Dona Ana County, fuel costs per foot of lift were also high in the \$.13 to \$.18 range. However, the total cost of water was the cheapest in the state reflecting the low

Table 1. Pump Testing Results, 1982

County	Energy Source	Irrigation System	Number of Tests	Average		
				Overall Plant Efficiency	Fuel Costs Per Unit of Water	Fuel Costs Per Unit of Pumping Depth
				%	\$/AF	\$/AF/F
Curry	Natural Gas	Fr*	16	16.8	27.75	.10
	Natural Gas	Pr**	2	17.6	28.93	.08
	Electricity	Fr	21	50.2	31.47	.10
	Electricity	Pr	20	61.0	31.06	.09
De Baca	Natural Gas	Fr	15	10.4	27.69	.19
	Natural Gas	Pr	7	14.2	49.94	.13
Dona Ana	Natural Gas	Fr	3	9.6	6.38	.18
	Electricity	Fr	28	46.0	12.86	.13
	Diesel	Fr	3	17.0	75.58	.16
Lea	Natural Gas	Fr	4	12.4	11.50	.10
Roosevelt	Electricity	Fr	2	45.6	10.30	.12
	Electricity	Pr	1	74.8	14.29	.07
Total Number of Tests			122			

* Fr = Free Discharge

** Pr = Pressurized System

pumping level in Dona Ana County. Most of the units checked were electric and the high cost per foot of lift reflects the high electric rates prevailing in this area. These results show that one can tolerate inefficient pumps if pumping level is small. The diesel units were located in a high lift area. The Lea County natural gas wells were quite inefficient at only 12.4 overall plant efficiency but the fuel costs for pumping water was low due to low pumping lift. The cost per acre-foot per foot of lift was \$.10, which was about normal. In Roosevelt County very few pumps were tested but the cost of water appeared to vary between \$10-\$15 per acre-foot.

Table 2 shows the pump testing results from 1983 when the far west counties of Hidalgo and Luna were added to the testing program as was Torrance County. A total of 206 tests were conducted with a large number of those being in Luna County. The reason for this large number was the acute interest in irrigation pump efficiency in Luna County because of increasing energy costs. Curry County prices were quite similar to 1982 except that the electric pressurized systems tested were in extremely good condition with an average efficiency of 63.8 percent for the six plants tested giving a cost per unit lift of about 10.3 cents which is reasonably good. In the Hidalgo area, fuel costs varied from \$26.02 for electric powered plants to about \$28.68 for natural gas powered ones. The cost per unit lift was in the 12.7 to 13.2 cents per acre-foot per foot of lift range which is three cents above average. In Torrance County the pumping plant efficiencies were quite low with figures for natural gas in the 10 to 12 percent area while for electricity the free discharge units looked only fair at 50 percent overall. The one pressurized electric unit that was tested had a very low efficiency of 33 percent. The fuel costs for pumping water in Torrance County varied from \$32.14 per acre-foot to a high of \$45.29 for a pressurized natural gas system.

Table 2. Pump Testing Results, 1983

County	Energy Source	Irrigation System	Number of Tests	Average		
				Overall Plant Efficiency	Fuel Costs Per Unit of Water	Fuel Costs Per Unit of Pumping Depth
				%	\$/AF	\$/AF/F
Curry	Natural Gas	Fr	26	12.8	37.63	.11
	Natural Gas	Pr	1	13.6	39.97	.11
	Electricity	Fr	8	53.9	43.42	.14
	Electricity	Pr	6	63.8	26.76	.10
De Baca	Natural Gas	Pr	4	13.3	33.82	.11
Hidalgo	Natural Gas	Fr	13	12.7	28.68	.13
	Electricity	Fr	32	52.8	26.02	.13
Luna	Natural Gas	Fr	15	13.1	21.33	.11
	Electricity	Fr	49	50.9	28.34	.15
Roosevelt	Natural Gas	Pr	8	12.6	36.62	.11
	Electricity	Pr	14	42.9	35.69	.17
Torrance	Natural Gas	Fr	23	10.2	32.34	.17
	Natural Gas	Pr	4	12.5	45.29	.19
	Electricity	Fr	2	50.0	32.14	.13
	Electricity	Pr	1	33.2	44.68	.20
Total Number of Tests			206			

Table 3 summarizes the pump test results for 1984. A total of 181 tests were conducted with basically the same counties being checked in 1984 as in 1983 except tests were conducted in Dona Ana County. Costs in Curry County were very similar to previous years with the exception of the electric free discharge units. The cost of pumping fuel for those units was quite high because of the elevated electrical costs in the area. These results indicate that water could cost at much as \$70.32 per acre-foot which has serious implications in that very efficient use of such expensive water must be made to justify the pumping costs. In Dona Ana County water only cost about \$11.00 per acre-foot even though the price per foot of lift was high at 19.7 cents. The same situation prevailed in Luna and Lea Counties where the cost of water was \$26.00 per acre-foot with the per acre-foot per foot charge of 19.7 cents. Roosevelt County pumping costs were about the same for natural gas and electricity. All of the systems tested were pressurized with cost of water being about \$28.00 per acre-foot. In Torrance County natural gas was about the same price as electricity with the exception of pressurized systems where electric pressurized systems costs were about \$45.00 per acre-foot.

In 1985 the program was expanded because additional funding was available from the New Mexico Energy and Minerals Department. As a result, the project goal was expanded to service the entire agricultural community rather than just the High Plains area. New counties included in the testing program were Chaves, Eddy, Sierra, Socorro, Union and Valencia. Table 4 summarizes the 176 tests conducted in 1985. Fuel costs for irrigation pumping remained quite stable with inexpensive water being available in Chaves County at \$12.17 per acre-foot, Dona Ana County at \$10.53, Eddy County at \$11-\$12.00 per acre-foot, and Sierra County with costs in the \$12-\$13.00 per acre-foot range. The

Table 3. Pump Testing Results, 1984

County	Energy Source	Irrigation System	Number of Tests	Average		
				Overall Plant Efficiency	Fuel Costs Per Unit of Water	Fuel Costs Per Unit of Pumping Depth
				%	\$/AF	\$/AF/F
Curry	Natural Gas	Fr	11	12.9	37.25	.11
	Natural Gas	Pr	5	13.4	55.43	.14
	Electricity	Fr	4	43.0	70.32	.20
	Electricity	Pr	17	67.5	44.79	.13
Dona Ana	Electricity	Fr	10	35.0	10.58	.20
Hidalgo	Natural Gas	Fr	2	9.7	14.00	.14
	Electricity	Fr	28	50.8	9.35	.16
Lea	Natural Gas	Pr	3	10.0	26.03	.20
Luna	Natural Gas	Fr	20	9.9	34.62	.18
	Electricity	Fr	48	47.9	31.55	.18
Roosevelt	Natural Gas	Pr	2	15.8	28.40	.10
	Electricity	Pr	6	67.5	28.19	.10
Torrance	Natural Gas	Fr	5	10.9	24.09	.15
	Natural Gas	Pr	7	13.0	30.94	.12
	Electricity	Fr	5	44.3	27.39	.14
	Electricity	Pr	8	51.9	44.79	.13
Total Number of Tests			181			

Table 4. Pump Testing Results, 1985

County	Energy Source	Irrigation System	Number of Tests	Average		
				Overall Plant Efficiency	Fuel Costs Per Unit of Water	Fuel Costs Per Unit of Pumping Depth
				%	\$/AF	\$/AF/F
Chaves	Natural Gas	Fr	4	5.9	12.17	.29
	Electricity	Fr	3	43.5	33.87	.25
	Electricity	Pr	2	51.9	33.44	.16
Dona Ana	Natural Gas	Fr	2	7.5	10.53	.27
	Electricity	Fr	21	47.4	29.39	.23
Eddy	Natural Gas	Fr	1	11.7	11.41	.15
	Electricity	Fr	32	46.7	11.97	.15
Luna	Natural Gas	Fr	7	9.7	20.00	.14
	Electricity	Fr	15	56.5	33.94	.23
Otero	Natural Gas	Fr	5	8.7	41.25	.24
	Electricity	Fr	22	29.3	66.72	.45
	Natural Gas	Pr	5	13.5	38.01	.16
Sierra	Diesel	Fr	1	10.7	12.11	.25
	Propane	Fr	2	6.0	13.12	.54
	Electricity	Fr	1	40.4	11.88	.21
Socorro	Electricity	Fr	11	44.5	7.27	.27
Torrance	Natural Gas	Fr	13	6.8	33.44	.24
	Electricity	Fr	10	40.0	27.93	.16
	Electricity	Pr	7	46.3	43.03	.17
Union	Natural Gas	Fr	5	11.7	31.92	.14
	Natural Gas	Pr	8	14.3	34.91	.12
	Electricity	Pr	2	59.6	55.81	.15
	Diesel	Pr	3	17.6	44.97	.17
Valencia	Natural Gas	Fr	2	6.2	12.06	.34
	Electricity	Fr	2	32.3	10.48	.34
Total Number of Tests			176			

lowest fuel costs for pumping were found in Socorro County where average costs were \$7.27 per acre-foot. High Plains counties such as Torrance and Union still had relatively high fuel costs with Torrance County being \$28-\$43.00 per acre-foot and Union County varying between \$32.00 and \$56.00 per acre-foot.

SUMMARY

The results of these tests are valuable for planners and others who must evaluate the various fuels that are available for pumping irrigation water in different areas of the state. Research information from this project will be widely used by economist and others in evaluating agricultural enterprises by knowing the approximate fuel costs for pumping water in the various areas of the state. Perhaps the largest accomplishment of this research project is to make individual farmers aware of their pumping costs and to inform them of the alternatives available in reducing the cost. Each farmer, at the time of the test, was given a copy of the results. If the test needed further evaluation, final information was mailed to the farmer the following week. Numerous inquires indicate that the farmers need these results and that they do use them in repairing their pumping units.

CONCLUSION

The cost of pumping irrigation water has increased dramatically since 1976. For the higher lift areas of the state, the cost of energy to pump water has reached a very marginal level for the production of traditional crops irrigated by conventional means. Inefficient pumps may use twice as much fuel as efficient ones. Farmers often have difficulty evaluating irrigation pump efficiency and therefore do not have all information needed to make purchasing decisions. A publicly financed testing program is needed to help farmers achieve and maintain reasonable efficiencies as the best means of coping with high energy costs.

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APPENDIX

PUMP TEST RESULTS FROM CURRY COUNTY, 1982

FARM-WELL #	STATIC			DRAW TOTAL			PUMP			POWER			EFFICIENCY			FUEL COST PER		
	LEVEL	FT	DOWN	HEAD	FT	FT	FLOW	GPM	HP	MOTOR	HP	FUEL	PUMP	MOTOR	PLANT	MCF/	AC-FT	AC-FT
#	FT	FT	FT	FT	FT	FT	GPM	HP	HP	HP	HP	HP	%	%	%	KWH	AC-FT	AC-FT
FREE DISCHARGE, NATURAL GAS POWERED PLANTS																		
4-1	NA	NA	219	953	53	NA	224	NA	224	NA	224	NA	NA	24	3.05	10.87	1.91	0.05
4-3	NA	NA	231	811	47	NA	636	NA	636	NA	636	NA	NA	NA	3.05	36.27	5.42	0.16
4-5	241	18	272	1155	79	NA	420	NA	420	NA	420	NA	NA	19	3.05	16.82	3.58	0.06
6-1	NA	NA	370	657	61	NA	490	NA	490	NA	490	NA	NA	13	3.05	34.51	4.18	0.09
6-2	339	25	364	653	60	NA	466	NA	466	NA	466	NA	NA	13	3.05	32.98	3.97	0.09
7-3	NA	NA	254	907	58	NA	234	NA	234	NA	234	NA	NA	25	3.05	11.93	1.99	0.05
9-1	235	25	271	945	65	NA	339	NA	339	NA	339	NA	NA	19	3.05	16.60	2.89	0.06
11-1	NA	NA	326	730	60	NA	150	NA	150	NA	150	NA	NA	40	3.05	9.51	1.28	0.03
12-1	NA	NA	288	770	56	NA	416	NA	416	NA	416	NA	NA	13	3.05	24.98	3.54	0.09
12-2	265	22	293	690	51	NA	348	NA	348	NA	348	NA	NA	15	3.05	23.36	2.97	0.08
14-1	354	14	373	512	48	127	592	NA	592	127	592	38	22	8	3.05	53.47	5.04	0.14
18-3	NA	NA	283	645	46	NA	362	NA	362	NA	362	NA	NA	13	3.05	25.96	3.08	0.09
20-1	254	13	275	720	50	NA	465	NA	465	NA	465	NA	NA	11	3.50	34.28	4.55	0.12
20-2	227	22	255	200	13	NA	203	NA	203	NA	203	NA	NA	6	3.50	53.99	1.99	0.21
20-3	241	24	259	265	17	NA	215	NA	215	NA	215	NA	NA	8	3.50	42.99	2.10	0.17
23-1	318	12	342	641	55	NA	215	NA	215	NA	215	NA	NA	26	3.05	15.52	1.83	0.05
AVERAGES	275	19	292	703	51	127	361	NA	361	127	361	38	22	17	3.13	27.75	3.14	0.10
SPRINKLER, NATURAL GAS POWERED PLANTS																		
8-2A	226	18	395	940	94	121	543	NA	543	121	543	78	22	17	3.50	30.64	5.30	0.08
8-2B	226	18	379	975	93	121	531	NA	531	121	531	77	23	18	3.50	28.93	5.19	0.08
FREE DISCHARGE, ELECTRIC POWERED PLANTS																		
1-1	396	4	401	150	15	43	48	NA	48	43	48	35	91	32	0.04	51.44	1.42	0.13
2-1	334	20	360	510	46	84	93	NA	93	84	93	55	91	50	0.04	29.40	2.76	0.08
5-1	183	54	248	970	61	120	132	NA	132	120	132	51	91	46	0.05	28.86	5.15	0.12
7-2	218	19	252	1075	68	143	155	NA	155	143	155	48	92	44	0.05	30.67	6.07	0.12
9-2	242	44	293	801	59	102	111	NA	111	102	111	58	92	53	0.05	29.51	4.35	0.10

RESULTS FROM CURRY COUNTY, CONTINUED														
10-1	NA	NA	270	441	30	76	84	39	91	36	0.05	40.54	3.29	0.15
10-3	NA	NA	280	830	59	81	90	72	91	65	0.05	22.99	3.51	0.08
10-4	NA	NA	292	553	41	105	115	39	92	35	0.05	44.20	4.50	0.15
13-1	262	16	289	410	30	61	68	49	91	44	0.05	35.18	2.66	0.12
17-1A	306	7	325	628	52	31	35	167	89	149	0.05	11.76	1.36	0.04
17-1B	306	7	325	195	16	33	37	49	89	44	0.05	39.93	1.43	0.12
17-2A	301	13	326	603	50	46	52	107	90	96	0.05	18.17	2.02	0.06
17-2B	301	13	326	260	21	43	48	50	90	45	0.05	39.19	1.88	0.12
21-1A	NA	NA	253	686	44	84	93	52	91	47	0.05	28.75	3.63	0.11
21-1B	NA	NA	253	800	51	84	93	61	91	55	0.05	24.65	3.63	0.10
21-2	NA	NA	288	625	45	84	93	54	91	49	0.05	31.55	3.63	0.11
22-1	230	52	289	790	58	82	90	71	91	64	0.05	24.16	3.51	0.08
22-2	215	15	238	665	40	87	96	46	91	42	0.05	30.65	3.75	0.13
23-2	353	20	374	95	9	49	55	18	90	16	0.05	122.0	2.13	0.33
23-3	373	5	379	71	7	33	37	21	90	19	0.05	109.4	1.43	0.29
23-4	364	9	374	114	11	43	48	25	90	22	0.05	89.76	1.88	0.24
AVERAGES	292	20	306	537	39	72	79	56	91	50	0.05	31.47	3.11	0.10

SPRINKLER, ELECTRIC POWERED PLANTS														
2-2	363	7	380	175	17	21	23	81	90	72	0.04	21.49	0.69	0.06
4-4	NA	NA	316	470	38	117	128	32	92	29	0.05	57.71	4.99	0.18
8-1A	NA	NA	368	890	83	130	143	64	91	58	0.05	34.06	5.58	0.09
8-1B	240	25	365	1100	101	141	154	72	91	66	0.05	29.86	6.05	0.08
15-1	NA	NA	352	710	63	96	107	66	90	59	0.05	32.03	4.19	0.09
15-4	NA	NA	350	800	71	134	146	53	92	48	0.05	38.91	5.73	0.11
16-1	205	25	321	600	49	97	107	50	91	45	0.05	37.94	4.19	0.12
16-2	209	15	315	860	68	97	107	70	91	64	0.05	26.44	4.19	0.08
15-2	290	20	432	880	96	127	139	75	92	69	0.05	33.60	5.44	0.08
15-3	230	15	332	700	59	105	116	56	91	51	0.05	35.19	4.54	0.11
15-4	NA	NA	360	920	84	150	164	56	92	51	0.05	37.81	6.40	0.11
15-6	NA	NA	357	820	74	134	146	55	92	51	0.05	37.96	5.73	0.11
18-1	NA	NA	346	780	68	110	121	62	91	56	0.05	32.98	4.74	0.10
18-2	NA	NA	350	890	79	110	121	71	91	65	0.05	28.90	4.74	0.08
18-4	NA	NA	357	820	74	105	116	70	91	64	0.05	30.04	4.54	0.08
18-5	226	14	341	850	73	126	139	58	91	53	0.05	34.79	5.44	0.10
18-6	NA	NA	88	645	14	17	20	82	89	73	0.05	6.46	0.77	0.07
19-1	NA	NA	353	865	77	116	126	67	92	61	0.05	31.06	4.95	0.09

RESULTS FROM CURRY COUNTY, CONTINUED

21-3	NA	463	775	91	123	136	73	91	67	0.05	37.22	5.31	0.08
22-3	176	18	301	67	126	139	53	91	48	0.05	33.80	5.44	0.11
AVERAGES	242	17	342	67	109	120	63	91	58	0.05	32.91	4.68	0.10

 NA-DATA NOT AVAILABLE

PUMP TEST RESULTS FROM DE BACA COUNTY, 1982

FARM-WELL #	STATIC LEVEL			DRAW DOWN			TOTAL HEAD			PUMP FLOW			POWER			EFFICIENCY			FUEL COST PER			
	FT	FT	FT	FT	FT	FT	GPM	HP	HP	HP	HP	HP	HP	HP	%	%	%	MCF/	AC-FT	AC-FT	AC-FT	
																		KWH	HOUR	HOUR	\$	\$
FREE DISCHARGE, NATURAL GAS POWERED PLANTS																						
1-1A	91	16	112	895	25	67	255	38	26	10	4.60	19.88	3.28	0.18								
1-1B	89	17	111	866	24	64	326	38	20	7	4.60	26.22	4.18	0.24								
2-1	110	19	131	700	23	49	260	48	19	9	4.60	25.95	3.35	0.20								
2-2	105	10	118	760	23	64	260	36	25	9	4.60	23.87	3.34	0.20								
2-3A	90	15	121	275	8	36	145	23	25	6	4.60	36.71	1.86	0.30								
2-3B	90	15	121	795	24	NA	193	49	26	13	4.60	16.93	2.48	0.14								
2-4	110	8	123	760	24	49	260	49	19	9	4.60	23.90	3.35	0.19								
2-5	110	8	120	305	9	NA	118	NA	NA	8	4.60	27.08	1.52	0.23								
2-6	85	18	108	603	16	NA	149	NA	NA	11	4.60	17.22	1.91	0.16								
3-1	319	21	345	882	77	105	343	73	31	22	4.60	27.13	4.41	0.08								
3-2	321	19	377	560	53	95	434	56	22	12	4.60	54.07	5.58	0.14								
5-1A	99	26	135	450	15	44	246	34	18	6	4.60	38.08	3.16	0.28								
5-1B	99	26	135	960	33	44	225	81	18	15	4.60	16.32	2.88	0.12								
5-2A	110	40	159	500	20	53	250	38	21	8	4.60	34.94	3.22	0.22								
5-2B	110	40	162	840	34	69	326	50	21	11	4.60	27.03	4.18	0.17								
AVERAGES	129	20	159	677	27	62	253	47	22	10	4.60	27.69	3.25	0.19								
SPRINKLER, NATURAL GAS POWERED PLANTS																						
1-2	NA	NA	225	890	51	88	347	58	25	15	4.60	27.22	4.46	0.12								
1-3	100	34	191	960	46	100	379	46	26	12	4.60	27.52	4.87	0.14								
3-3	NA	NA	507	360	46	NA	501	NA	NA	9	4.60	97.03	6.43	0.19								
3-4A	NA	NA	378	420	40	NA	372	NA	NA	11	4.60	61.79	4.78	0.16								
3-4B	NA	NA	389	490	48	NA	372	NA	NA	13	4.60	52.97	4.78	0.14								
4-1	284	15	340	475	41	97	334	42	29	12	4.60	49.03	4.29	0.14								
4-2	284	21	343	580	50	76	283	66	27	18	4.60	34.04	3.64	0.10								
AVERAGES	223	23	339	596	46	90	370	53	27	13	4.60	49.94	4.75	0.14								

NA-DATA NOT AVAILABLE

PUMP TEST RESULTS FROM DONA ANA COUNTY, 1982

FARM-WELL #	STATIC LEVEL	DRAW DOWN	TOTAL HEAD	PUMP FLOW	POWER		EFFICIENCY		FUEL COST PER					
					MOTOR HP	HP	PUMP %	MOTOR %	PLANT	MCF / KWH	AC-FT	HOUR	AC-FT / FT	
FREE DISCHARGE, NATURAL GAS POWERED PLANTS														
1-1	11	30	46	1395	16	25	140	65	18	12	4.40	6.67	1.71	0.15
2-1	NA	NA	38	1323	13	NA	178	NA	NA	7	4.40	8.99	2.19	0.24
4-1	11	4	21	975	5	NA	51	NA	NA	10	4.40	3.46	0.62	0.16
AVERAGES	11	17	35	1231	11	25	123	65	18	10	4.40	6.38	1.51	0.18
FREE DISCHARGE, ELECTRIC POWERED PLANTS														
3-1	NA	NA	46	810	9	15	17	61	89	54	0.05	4.00	0.60	0.09
5-1	48	84	276	165	12	21	24	55	87	48	0.05	27.00	0.82	0.10
5-2	51	100	295	132	10	21	25	46	87	40	0.05	34.60	0.84	0.12
5-3	16	16	207	162	8	23	26	36	89	32	0.05	30.26	0.90	0.15
5-4	16	27	239	273	16	23	26	70	89	63	0.05	17.96	0.90	0.08
6-1	21	8	31	445	3	14	16	25	87	22	0.05	6.66	0.55	0.21
8-1	35	10	47	200	2	5	6	48	83	40	0.05	5.58	0.21	0.12
9-1A	105	36	147	1150	43	94	103	45	92	41	0.06	21.76	4.61	0.15
9-1B	105	36	147	1268	47	94	103	50	92	46	0.06	19.73	4.61	0.13
9-2	91	30	126	2300	73	128	139	57	92	53	0.06	14.70	6.22	0.12
9-3A	105	16	126	1830	58	100	110	58	92	53	0.06	14.58	4.91	0.12
9-3B	105	16	126	2018	64	100	110	64	92	59	0.06	13.22	4.91	0.10
9-4	25	63	95	3291	79	128	139	62	92	57	0.06	10.27	6.22	0.11
9-5	18	35	56	1815	26	68	75	38	91	34	0.06	9.98	3.34	0.18
10-5	50	61	64	2187	35	95	104	37	91	34	0.06	11.59	4.66	0.18
10-6	NA	NA	107	2393	65	119	130	55	91	50	0.06	13.24	5.83	0.12
10-9	19	75	90	2700	61	132	144	46	92	43	0.06	12.95	6.44	0.14
10-11	21	45	71	3011	54	90	99	60	91	54	0.06	8.02	4.45	0.11
10-12	11	43	54	1800	25	52	58	47	90	42	0.06	7.82	2.59	0.14
10-13	15	48	68	2970	51	119	130	43	91	39	0.06	10.67	5.83	0.16
10-14	14	46	65	2750	45	90	99	50	91	45	0.06	8.78	4.45	0.14
10-15	16	37	58	2930	43	92	101	47	91	43	0.06	8.37	4.52	0.14

RESULT FROM DONA ANA COUNTY, CONTINUED

10-18	14	55	74	2974	56	95	104	59	91	53	0.06	8.52	4.66	0.12
10-20	13	50	68	2910	50	86	95	58	91	53	0.06	7.92	4.24	0.12
10-24	21	32	58	2700	40	86	95	46	91	42	0.06	8.54	4.24	0.15
10-25	14	41	60	3053	46	88	97	52	91	48	0.06	7.72	4.34	0.13
10-26	13	86	106	2516	67	112	123	60	91	55	0.06	11.85	5.49	0.11
10-27	10	15	27	1733	12	23	26	51	89	45	0.06	3.66	1.17	0.14
AVERAGES	37	43	105	1875	39	76	83	51	90	46	0.06	12.86	3.66	0.13

FREE DISCHARGE, DIESEL POWERED PLANTS

7-1A	434	30	474	702	84	NA	585	NA	NA	NA	0.94	81.61	10.55	0.17
7-1B	434	30	480	730	88	NA	517	NA	NA	17	0.94	69.55	9.35	0.14
7-2	380	NA	380	NA	NA	170	361	NA	47	NA	0.94	NA	6.50	NA
AVERAGES	416	30	445	716	86	170	488	NA	47	17	0.94	75.58	8.80	0.16

 NA-DATA NOT AVAILABLE

PUMP TEST RESULTS FROM LEA COUNTY, 1982

FARM-WELL #	STATIC LEVEL	DRAW DOWN	TOTAL HEAD	PUMP FLOW	POWER		EFFICIENCY		FUEL COST PER				
					WATER MOTOR	FUEL PUMP	MOTOR	PLANT	MCF/KWH	AC-FT/HOUR	AC-FT/FT		
#-#	FT	FT	FT	GPM	HP	HP	%	%	\$	\$	\$	\$	
FREE DISCHARGE, NATURAL GAS POWERED PLANTS													
1-3	106	4	112	807	23	NA	159	NA	14	3.10	9.25	1.37	0.08
1-4	107	2	113	778	22	NA	163	NA	14	3.10	9.83	1.41	0.09
1-5	108	5	119	1114	33	NA	260	NA	13	3.10	10.99	2.25	0.09
1-6	110	3	119	854	26	NA	289	NA	9	3.10	15.93	2.50	0.13
AVERAGES	108	4	116	888	26	NA	218	NA	12	3.10	11.50	1.89	0.10

NA-DATA NOT AVAILABLE

PUMP TEST RESULTS FROM ROOSEVELT COUNTY, 1982

#-#	STATIC LEVEL		DRAW DOWN		TOTAL HEAD		PUMP FLOW		POWER			EFFICIENCY			FUEL COST PER		
	FT	FT	FT	FT	FT	FT	GPM	HP	HP	HP	HP	%	%	%	MCF/ KWH	AC-FT HOUR	AC-FT /FT
FREE DISCHARGE, ELECTRIC POWERED PLANTS																	
1-2	75	16	93	513	12	19	22	22	22	22	62	88	55	0.05	9.17	0.87	0.10
1-3	NA	NA	78	517	10	24	28	28	28	42	88	37	0.05	11.44	1.09	0.15	
AVERAGES	75	16	86	515	11	22	25	25	25	52	88	46	0.05	10.30	0.98	0.12	
SPRINKLER, ELECTRIC POWERED PLANTS																	
1-1	74	23	199	460	23	28	31	31	31	84	89	75	0.05	14.29	1.21	0.07	

NA-DATA NOT AVAILABLE

PUMP TEST RESULTS FROM CURRY COUNTY, 1983

FARM-WELL #	STATIC LEVEL FT	DRAW DOWN FT	TOTAL HEAD FT	PUMP FLOW GPM	WATER MOTOR HP	POWER		EFFICIENCY		FUEL COST PER				
						FUEL HP	MOTOR HP	FUEL PUMP %	MOTOR PLANT %	MCF/KWH	AC-FT/HOUR	\$/AC-FT	\$/HOUR	\$/AC-FT
FREE DISCHARGE, NATURAL GAS POWERED PLANTS														
1-1	226	17	252	934	59	NA	419	NA	NA	14	3.60	24.47	4.21	0.10
2-1	298	15	324	747	61	91	430	67	21	14	3.50	30.53	4.20	0.09
2-2	283	13	327	599	49	NA	349	NA	NA	14	3.50	30.91	3.41	0.09
4-1	241	25	291	665	49	NA	362	NA	NA	13	3.50	28.90	3.54	0.10
4-2	237	3	245	500	31	82	397	38	21	8	3.50	42.11	3.88	0.17
5-1A	295	7	307	632	49	NA	430	NA	NA	11	3.50	36.09	4.20	0.12
5-1B	295	9	310	737	58	NA	467	NA	NA	12	3.50	33.64	4.57	0.11
5-2	272	23	304	713	55	74	344	74	22	16	3.50	25.59	3.36	0.08
5-3	352	24	380	452	43	NA	353	NA	NA	12	3.50	41.47	3.45	0.11
5-4	339	25	383	432	42	NA	303	NA	NA	14	3.50	37.27	2.96	0.10
5-5	321	38	369	643	60	NA	397	NA	NA	15	3.50	32.74	3.88	0.09
7-1	320	14	363	570	52	NA	314	NA	NA	17	3.50	29.28	3.07	0.08
8-1	308	9	322	410	33	NA	307	NA	NA	11	3.50	39.74	3.00	0.12
8-2	NA	NA	329	517	43	NA	318	NA	NA	13	3.50	32.67	3.11	0.10
8-3	297	18	329	981	82	NA	512	NA	NA	16	3.50	27.68	5.00	0.08
11-2A	328	39	500	429	54	NA	400	NA	NA	14	3.80	53.69	4.24	0.11
11-2B	328	39	358	411	37	NA	305	NA	NA	12	3.80	42.80	3.24	0.12
11-4A	342	6	350	220	19	68	273	29	25	7	3.80	71.39	2.89	0.20
11-4B	342	6	350	316	28	79	317	35	25	9	3.80	57.91	3.37	0.17
13-1	225	51	286	842	61	NA	451	NA	NA	13	3.60	29.25	4.54	0.10
13-2	225	57	301	1029	78	NA	422	NA	NA	19	3.60	22.40	4.24	0.07
13-3	225	50	287	792	57	NA	341	NA	NA	17	3.60	23.52	3.43	0.08
13-4	225	66	302	508	39	NA	405	NA	NA	10	3.60	43.54	4.07	0.14
13-5	225	52	287	443	32	NA	403	NA	NA	8	3.60	49.68	4.05	0.17
14-1	331	9	356	363	33	NA	379	NA	NA	9	3.60	57.02	3.81	0.16
14-2	335	0	338	685	58	NA	427	NA	NA	14	3.60	34.05	4.29	0.10
AVERAGES	289	25	329	599	49	79	378	48	23	13	3.58	37.63	3.77	0.11

RESULTS FOR CURRY COUNTY, CONTINUED

SPRINKLER, NATURAL GAS POWERED PLANTS		ELECTRIC POWERED PLANTS		ELECTRIC POWERED PLANTS		ELECTRIC POWERED PLANTS		ELECTRIC POWERED PLANTS		ELECTRIC POWERED PLANTS		ELECTRIC POWERED PLANTS		ELECTRIC POWERED PLANTS		
11-1	273	17	373	580	55	NA	402	NA	NA	NA	14	3.80	39.97	4.27	0.11	
FREE DISCHARGE, ELECTRIC POWERED PLANTS																
1-2	227	20	267	624	42	76	83	55	92	50	0.08	40.62	4.67	0.15		
3-3	264	11	280	665	47	95	104	50	92	45	0.07	44.21	5.41	0.16		
3-4	NA	14	273	722	50	72	79	69	92	63	0.07	30.94	4.11	0.11		
3-5	263	15	283	526	38	77	84	49	92	45	0.07	45.51	4.41	0.16		
6-1	228	8	240	207	13	13	15	93	89	83	0.07	20.69	0.79	0.09		
10-1	258	3	313	21	2	4	5	40	81	32	0.07	69.97	0.27	0.22		
11-3	331	19	363	193	18	32	37	56	85	48	0.07	54.47	1.94	0.15		
12-1	341	28	369	535	50	71	77	71	92	65	0.07	40.94	4.03	0.11		
AVERAGES	273	15	299	437	32	55	61	60	89	54	0.07	43.42	3.20	0.14		
SPRINKLER, ELECTRIC POWERED PLANTS																
1-3	227	4	310	1015	79	91	99	87	92	80	0.08	29.72	5.55	0.10		
3-1	NA	39	275	880	61	82	90	75	92	68	0.07	28.87	4.68	0.10		
3-2	NA	32	388	880	86	106	116	81	92	74	0.07	37.33	6.05	0.10		
9-1A	19	0	226	530	30	52	58	58	91	52	0.06	24.35	2.38	0.11		
9-1B	19	0	203	640	33	56	62	59	91	53	0.06	21.52	2.54	0.11		
9-1C	19	0	182	750	34	57	63	60	91	55	0.06	18.78	2.59	0.10		
AVERAGES	71	13	264	783	54	74	81	70	91	64	0.06	26.76	3.96	0.10		

 NA-DATA NOT AVAILABLE

PUMP TEST RESULTS FOR DE BACA COUNTY, 1983

FARM-WELL #	STATIC LEVEL		DRAW DOWN		TOTAL HEAD		PUMP FLOW		WATER MOTOR		POWER		EFFICIENCY		FUEL COST PER				
	FT	FT	FT	FT	FT	FT	GPM	HP	HP	HP	HP	%	%	%	%	MCF/KWH	AC-FT/HOUR	AC-FT/FT	
SPRINKLER, NATURAL GAS POWERED PLANTS																			
1-1	276	10	310	245	19	NA	209	NA	NA	NA	NA	9	3.60	46.58	2.10	0.15			
1-2	276	20	340	395	34	NA	284	NA	NA	NA	12	3.60	39.26	2.86	0.12				
2-1	80	85	264	645	43	NA	307	NA	NA	NA	14	3.60	25.99	3.09	0.10				
2-2	80	100	304	820	63	NA	352	NA	NA	NA	18	3.60	23.44	3.54	0.08				
AVERAGES	178	54	305	526	40	NA	288	NA	NA	NA	13	3.60	33.82	2.90	0.11				

NA-DATA NOT AVAILABLE

PUMP TEST RESULTS FOR HIDALGO COUNTY, 1983

FARM-WELL #	STATIC DRAW TOTAL				PUMP FLOW WATER MOTOR			POWER			EFFICIENCY			FUEL COST PER			
	LEVEL	DOWN	HEAD	PUMP	HP	HP	HP	FUEL	PUMP	MOTOR	%	%	%	MCF/	AC-FT	HOUR	AC-FT
#	FT	FT	FT	GPM	HP	HP	HP	HP	HP	%	%	%	KWH	AC-FT	HOUR	AC-FT	\$/
FREE DISCHARGE, NATURAL GAS POWERED PLANTS																	
1-1	153	32	195	674	33	NA	258	NA	NA	NA	13	3.80	22.06	2.74	0.11		
1-2	153	32	192	632	31	NA	372	NA	NA	8	3.80	33.92	3.95	0.18			
1-4	175	31	210	309	16	NA	150	NA	NA	11	3.80	27.98	1.59	0.13			
1-5	233	61	317	904	72	NA	467	NA	NA	15	4.80	37.61	6.26	0.12			
1-6	233	43	289	899	66	NA	470	NA	NA	14	4.80	38.06	6.30	0.13			
2-2	126	38	173	317	14	NA	105	NA	NA	13	3.80	19.09	1.11	0.11			
2-3	153	32	193	377	18	NA	168	NA	NA	11	4.80	32.44	2.25	0.17			
5-2	171	7	180	401	18	NA	235	NA	NA	8	3.80	33.78	2.49	0.19			
11-2	150	114	276	1022	71	NA	440	NA	NA	16	3.80	24.81	4.67	0.09			
12-1	135	76	231	923	54	NA	384	NA	NA	14	3.80	23.98	4.08	0.10			
12-2	135	99	251	708	45	NA	299	NA	NA	15	3.80	24.34	3.17	0.10			
12-3	135	105	266	815	55	NA	427	NA	NA	13	3.80	30.20	4.53	0.11			
14-1	140	90	242	815	50	NA	347	NA	NA	14	3.80	24.54	3.68	0.10			
AVERAGES	161	58	232	677	42	NA	317	NA	NA	13	4.03	28.68	3.60	0.13			
FREE DISCHARGE, ELECTRIC POWERED PLANTS																	
1-3	164	37	207	652	34	56	61	61	91	56	0.07	24.76	2.97	0.12			
2-1	126	6	135	313	11	24	30	44	81	36	0.07	25.16	1.45	0.19			
2-4	148	20	171	181	8	13	17	61	78	47	0.07	24.01	0.80	0.14			
2-5	150	49	202	445	23	49	54	47	91	42	0.07	31.79	2.60	0.16			
3-1	160	57	227	1139	65	91	100	72	92	66	0.07	23.03	4.83	0.10			
3-2	153	32	198	1341	67	106	116	63	92	58	0.07	22.78	5.62	0.12			
3-3	147	30	188	1078	51	91	100	56	91	51	0.07	24.34	4.83	0.13			
3-4	151	63	223	939	53	74	82	71	91	65	0.07	22.95	3.97	0.10			
4-1	185	59	253	882	56	83	91	68	91	62	0.07	27.30	4.43	0.11			
4-2	184	59	252	900	57	85	94	67	91	61	0.07	27.51	4.56	0.11			
4-3	184	37	225	424	24	39	43	61	91	56	0.07	26.96	2.10	0.12			
4-4A	155	20	211	1082	58	97	107	59	91	54	0.07	26.05	5.19	0.12			

RESULTS FROM HIDALGO COUNTY, CONTINUED

4-4R	155	21	206	1135	59	91	100	65	91	59	0.07	23.16	4.84	0.11
5-1	173	16	194	811	40	61	67	65	91	59	0.07	21.79	3.25	0.11
5-3	183	35	221	479	27	55	61	48	91	44	0.07	33.54	2.96	0.15
6-1	174	23	198	378	19	35	39	54	91	49	0.07	26.90	1.87	0.14
6-2	162	24	192	700	34	57	63	59	91	54	0.07	23.78	3.06	0.12
7-1	155	19	185	1054	49	67	74	74	91	67	0.07	18.37	3.56	0.10
8-1	152	24	181	726	33	58	64	57	91	52	0.07	23.15	3.09	0.13
8-2	114	20	140	654	23	64	70	36	91	33	0.07	28.27	3.40	0.20
8-3	123	65	193	665	32	49	54	66	91	60	0.12	37.70	4.62	0.20
9-1	120	28	153	806	31	51	56	61	91	55	0.07	18.37	2.73	0.12
9-2	133	46	185	886	41	67	73	62	91	57	0.07	21.76	3.55	0.12
9-3A	141	43	193	624	30	56	62	54	91	49	0.07	26.09	3.00	0.14
9-3B	141	41	194	605	30	56	62	53	91	48	0.07	27.08	3.02	0.14
9-4A	142	27	199	663	33	69	76	48	91	44	0.07	30.19	3.69	0.15
9-4B	142	28	178	733	33	70	77	47	91	43	0.07	27.74	3.74	0.16
10-1	145	30	180	696	32	52	58	60	91	55	0.07	21.91	2.81	0.12
10-2	145	32	183	819	38	89	97	43	92	39	0.07	31.13	4.69	0.17
11-1A	150	33	245	2360	146	246	265	59	93	55	0.07	29.58	12.85	0.12
11-1R	150	33	233	2464	145	246	265	59	93	55	0.07	28.33	12.85	0.12
13-1	167	61	245	1426	88	135	147	65	92	60	0.07	27.15	7.13	0.11
AVERAGES	152	35	200	877	46	78	85	58	90	53	0.07	26.02	4.19	0.13

 NA-DATA NOT AVAILABLE

PUMP TEST RESULTS FROM LUNA COUNTY, 1983

FARM-WELL #	STATIC LEVEL FT	DRAW DOWN FT	TOTAL HEAD FT	PUMP FLOW GPM	WATER MOTOR HP	POWER		EFFICIENCY		FUEL COST PER				
						MOTOR HP	FUEL HP	PUMP %	MOTOR %	PLANT %	MCF/KWH	AC-FT/HOUR	\$/AC-FT	\$/HOUR
FREE DISCHARGE, NATURAL GAS POWERED PLANTS														
5-1	155	13	188	491	23	NA	186	NA	NA	13	3.50	20.11	1.82	0.11
5-2	155	11	172	543	24	NA	248	NA	NA	10	3.50	24.24	2.42	0.14
6-1	150	10	167	690	29	NA	194	NA	NA	15	3.50	14.93	1.90	0.09
6-2	149	36	192	719	35	NA	280	NA	NA	12	3.50	20.67	2.74	0.11
6-3	150	35	193	334	16	NA	114	NA	NA	14	3.50	18.12	1.11	0.09
6-4	150	34	194	520	25	NA	182	NA	NA	14	3.50	18.58	1.78	0.10
8-2	145	47	205	548	28	NA	239	NA	NA	12	3.50	23.15	2.34	0.11
8-3A	145	40	190	470	23	NA	238	NA	NA	9	3.50	26.88	2.33	0.14
8-3B	145	35	185	281	13	NA	147	NA	NA	9	3.50	27.77	1.44	0.15
8-5	147	26	180	535	24	NA	160	NA	NA	15	3.50	15.88	1.56	0.09
8-7	140	29	176	780	35	NA	270	NA	NA	13	3.50	18.38	2.64	0.10
9-1A	175	14	208	653	34	NA	268	NA	NA	13	3.50	21.79	2.62	0.10
9-1B	175	45	235	586	35	NA	251	NA	NA	14	3.50	22.74	2.45	0.10
9-2	175	107	299	519	39	NA	249	NA	NA	16	3.50	25.47	2.43	0.09
9-3	180	85	293	679	50	NA	272	NA	NA	18	3.50	21.26	2.66	0.07
AVERAGES	156	38	205	557	29	NA	220	NA	NA	13	3.50	21.33	2.15	0.11
FREE DISCHARGE, ELECTRIC POWERED PLANTS														
1-1	130	25	159	712	29	43	47	67	91	61	0.07	18.76	2.46	0.12
1-2	130	40	172	368	16	30	33	54	90	48	0.07	25.51	1.73	0.15
1-3	125	23	151	671	26	38	42	68	90	61	0.07	17.63	2.18	0.12
1-4	120	18	141	638	23	36	40	64	90	58	0.07	17.56	2.06	0.12
1-5	133	26	163	715	29	49	55	60	91	54	0.07	20.08	2.64	0.12
1-6	112	17	137	586	20	37	41	55	90	49	0.07	18.43	1.99	0.13
1-7	111	18	133	662	22	31	35	71	90	64	0.07	13.85	1.69	0.10
1-8	110	10	127	648	21	32	35	65	90	59	0.07	14.35	1.71	0.11
1-9	100	15	120	685	21	33	37	62	90	56	0.07	14.27	1.80	0.12
1-10	118	75	194	223	11	25	27	44	90	40	0.07	34.73	1.43	0.18

RESULTS FROM LUNA COUNTY, CONTINUED

2-1	140	108	255	293	19	43	48	44	91	39	0.07	46.37	2.50	0.18
2-2	145	175	337	483	41	76	83	54	91	49	0.07	48.98	4.36	0.15
2-3	142	117	270	560	38	57	63	67	91	61	0.07	31.66	3.26	0.12
2-4	140	128	275	426	30	51	57	58	91	52	0.07	37.62	2.95	0.14
2-5	140	126	280	421	30	41	46	73	90	65	0.07	30.72	2.38	0.11
2-6	125	25	160	412	17	26	29	64	90	57	0.07	19.97	1.51	0.12
2-7	125	33	168	439	19	32	35	59	90	53	0.07	22.81	1.84	0.14
2-8	196	56	262	636	42	71	77	60	92	55	0.07	34.43	4.03	0.13
2-9	124	26	160	570	23	46	52	50	90	45	0.07	25.68	2.69	0.16
2-10	139	5	151	460	18	39	43	45	90	40	0.07	26.76	2.27	0.18
2-11	155	40	205	386	20	32	36	62	90	56	0.07	26.38	1.87	0.13
2-12	153	47	217	508	28	46	51	60	90	54	0.07	28.65	2.68	0.13
2-13	140	2	148	121	5	21	24	22	90	19	0.07	55.09	1.23	0.37
2-14	158	58	236	599	36	65	72	55	91	50	0.06	29.10	3.21	0.12
3-1	49	57	109	691	19	40	44	48	91	43	0.06	15.52	1.97	0.14
3-2	75	28	107	217	6	12	13	51	89	45	0.06	14.57	0.58	0.14
3-3	47	49	103	1062	28	51	56	55	91	49	0.06	12.82	2.51	0.12
4-1	100	75	182	95	4	11	13	41	83	34	0.07	38.52	0.67	0.21
4-2	100	50	157	63	2	5	6	46	85	39	0.07	28.86	0.33	0.18
4-3	100	66	171	170	7	16	18	47	85	40	0.07	30.54	0.96	0.18
4-4	100	65	173	140	6	17	20	35	85	30	0.07	41.33	1.07	0.24
5-3	155	12	175	299	13	26	29	51	90	46	0.07	27.51	1.51	0.16
7-1	125	10	142	280	10	21	23	48	90	43	0.07	23.50	1.21	0.17
8-1	140	55	207	450	24	32	36	73	90	66	0.07	22.63	1.87	0.11
8-4	135	57	195	461	23	28	31	81	90	72	0.07	19.32	1.64	0.10
8-6	122	9	136	426	15	27	30	54	90	48	0.07	20.11	1.58	0.15
10-1	120	20	155	460	18	30	33	60	90	54	0.07	20.41	1.73	0.13
11-1	200	29	232	450	26	43	47	62	91	56	0.07	27.57	2.28	0.12
11-2	220	53	284	950	68	90	99	76	92	69	0.07	27.34	4.78	0.10
11-3	185	0	162	650	27	57	63	46	91	42	0.07	25.61	3.06	0.16
11-4	240	19	265	172	12	34	38	34	90	30	0.07	58.35	1.85	0.22
11-5	250	0	260	393	26	40	44	65	90	59	0.07	29.56	2.14	0.11
11-6	26	61	326	272	22	42	46	54	90	48	0.07	44.84	2.25	0.14
11-7	125	16	154	526	20	31	35	65	90	59	0.07	17.43	1.69	0.11
11-8	200	19	221	307	17	72	79	24	91	22	0.07	68.12	3.85	0.31
12-1	200	87	302	1163	89	142	154	63	92	58	0.07	34.88	7.47	0.12
12-2	234	23	279	900	63	80	87	80	91	73	0.07	25.58	4.24	0.09

RESULTS FROM LUMA COUNTY, CONTINUED

12-3	182	15	210	1026	54	81	89	67	91	61	0.07	22.87	4.32	0.11
13-1	200	60	280	1562	110	172	187	64	92	59	0.07	31.53	9.07	0.11
AVERAGES	140	44	196	519	26	45	50	57	90	51	0.07	28.34	2.47	0.15

 NA-DATA NOT AVAILABLE

PUMP TEST RESULTS FROM ROOSEVELT COUNTY, 1983

FARM-WELL #	STATIC LEVEL			DRAW DOWN			TOTAL HEAD			PUMP FLOW			POWER			EFFICIENCY			FUEL COST PER					
	FT	FT	FT	FT	FT	FT	FT	FT	FT	HP	HP	HP	HP	HP	HP	%	%	%	MCF/KWH	AC-FT/HOUR	\$	\$	AC-FT/FT	
SPRINKLER, NATURAL GAS POWERED PLANTS																								
1-1	183	8	269	720	49	NA	430	NA	NA	430	NA	NA	11	3.50	31.70	4.20	0.12							
1-2	175	15	268	620	42	NA	335	NA	NA	335	NA	13	3.70	30.32	3.46	0.11								
1-3	168	16	280	705	50	NA	348	NA	NA	348	NA	14	3.70	27.70	3.60	0.10								
2-1	170	17	281	640	45	NA	386	NA	NA	386	NA	12	3.70	33.85	3.99	0.12								
2-2	175	20	333	700	59	NA	369	NA	NA	369	NA	16	3.70	29.58	3.81	0.09								
4-1	190	30	357	630	57	NA	403	NA	NA	403	NA	14	3.70	35.90	4.16	0.10								
4-3	275	25	390	605	60	NA	620	NA	NA	620	NA	10	3.70	57.51	6.41	0.15								
4-4	260	14	368	600	56	NA	496	NA	NA	496	NA	11	3.70	46.39	5.13	0.13								
AVERAGES	200	18	318	653	52	NA	423	NA	NA	423	NA	13	3.68	36.62	4.34	0.11								
SPRINKLER, ELECTRIC POWERED PLANTS																								
1-4	144	35	277	635	44	121	132	37	92	132	37	92	34	0.07	58.97	6.89	0.21							
1-5	147	32	323	605	49	118	129	42	92	129	42	92	38	0.07	60.48	6.74	0.19							
1-6	160	22	312	655	52	120	130	43	92	130	43	92	40	0.07	56.30	6.79	0.18							
1-7	130	33	297	460	35	59	65	58	92	65	58	92	53	0.07	39.84	3.37	0.13							
3-1	85	2	188	26	1	2	3	57	80	3	57	80	46	0.07	29.57	0.14	0.16							
3-2	85	2	188	26	1	2	3	57	80	3	57	80	46	0.07	29.57	0.14	0.16							
3-3	85	4	179	71	3	9	11	34	82	11	34	82	28	0.07	45.55	0.60	0.25							
4-2	150	43	319	1053	85	126	137	67	92	137	67	92	62	0.07	34.27	6.64	0.11							
5-1	47	10	165	280	12	26	29	45	90	29	45	90	40	0.07	27.37	1.41	0.17							
5-2	45	11	163	335	14	31	35	44	90	31	35	44	40	0.07	27.36	1.69	0.17							
5-3	50	8	118	280	8	17	20	48	89	17	20	48	43	0.07	18.34	0.95	0.16							
5-4	50	15	122	125	4	11	13	35	86	11	13	35	30	0.07	27.18	0.63	0.22							
5-5	66	10	174	130	6	9	11	63	86	9	11	63	54	0.07	21.48	0.51	0.12							
5-6	66	7	171	250	11	20	22	54	90	20	22	54	49	0.07	23.39	1.08	0.14							
AVERAGES	94	17	214	352	23	48	53	49	88	48	53	49	43	0.07	35.69	2.68	0.17							

NA-DATA NOT AVAILABLE

PUMP TEST RESULTS FROM TORRANCE COUNTY, 1983

FARM-WELL #	STATIC LEVEL		DRAW DOWN		TOTAL HEAD		PUMP FLOW		WATER MOTOR		POWER		EFFICIENCY		FUEL COST PER				
	FT	FT	FT	FT	FT	FT	GPM	HP	HP	HP	HP	HP	%	%	%	MCF/	AC-FT	HOUR	AC-FT
FREE DISCHARGE, NATURAL GAS POWERED PLANTS																			
1-2	135	23	161	557	23	NA	189	NA	12	4.10	21.10	2.16	0.13						
2-1	130	39	172	561	24	NA	177	NA	14	4.10	19.62	2.03	0.11						
2-2	113	47	165	625	26	NA	174	NA	15	4.10	17.31	1.99	0.10						
3-1	130	15	165	448	19	NA	181	NA	10	4.10	25.12	2.07	0.15						
3-2	120	54	202	381	19	NA	163	NA	12	4.10	26.60	1.87	0.13						
4-1	80	95	197	241	12	NA	192	NA	6	4.10	49.54	2.20	0.25						
4-2	85	55	155	241	9	NA	132	NA	7	4.10	34.06	1.51	0.22						
4-3	100	41	154	331	13	NA	221	NA	6	4.10	41.52	2.53	0.27						
4-4	108	28	148	139	5	NA	150	NA	3	4.10	67.10	1.72	0.45						
5-1	80	63	151	405	15	NA	159	NA	10	4.10	24.41	1.82	0.16						
5-2	80	91	176	222	10	NA	143	NA	7	4.10	40.06	1.64	0.23						
6-1	100	54	157	461	18	NA	218	NA	8	4.10	29.41	2.50	0.19						
6-2	90	48	141	341	12	NA	138	NA	9	4.10	25.17	1.58	0.18						
7-1	130	165	297	276	21	NA	164	NA	13	4.10	36.95	1.88	0.12						
8-1	110	72	189	814	39	NA	319	NA	12	4.10	24.37	3.65	0.13						
8-2	140	105	256	679	44	NA	328	NA	13	4.10	30.04	3.76	0.12						
9-1	166	124	292	295	22	NA	228	NA	10	4.10	48.06	2.61	0.16						
9-2	170	71	246	330	21	NA	181	NA	11	4.10	34.11	2.07	0.14						
9-3	170	46	222	248	14	NA	183	NA	8	4.10	45.89	2.10	0.21						
10-2	108	32	141	294	10	NA	131	NA	8	4.10	27.71	1.50	0.20						
12-1	125	35	170	864	37	NA	260	NA	14	4.10	18.71	2.98	0.11						
12-2	122	63	188	702	33	NA	245	NA	14	4.10	21.70	2.81	0.12						
12-3	114	143	269	570	39	NA	324	NA	12	4.10	35.35	3.71	0.13						
AVERAGES	118	66	192	436	21	NA	200	NA	10	4.10	32.34	2.29	0.17						

RESULTS FROM TORRANCE COUNTY, CONTINUED

SPRINKLER, NATURAL GAS POWERED PLANTS														
1-1	105	22	220	470	26	NA	204	NA	NA	13	4.10	26.99	2.34	0.12
10-1*	108	28	238	309	19	NA	191	NA	NA	10	1.18	97.00	5.52	0.41
13-1	150	45	249	665	42	NA	299	NA	NA	14	4.10	27.96	3.42	0.11
13-2	150	43	254	460	30	NA	216	NA	NA	14	4.10	29.20	2.47	0.11
AVERAGES	128	35	240	476	29	NA	228	NA	NA	13	3.37	45.29	3.44	0.19

*GASOLINE

FREE DISCHARGE, ELECTRIC POWERED PLANTS														
3-3	165	18	232	163	10	18	21	52	85	45	0.07	34.58	1.04	0.15
11-1	70	167	247	408	25	42	46	61	91	55	0.07	29.70	2.23	0.12
AVERAGES	118	93	240	286	17	30	34	57	88	50	0.07	32.14	1.63	0.13

SPRINKLER, ELECTRIC POWERED PLANTS														
3-4	91	20	223	464	26	72	79	36	91	33	0.07	44.68	3.82	0.20

 NA-DATA NOT AVAILABLE

PUMP TEST RESULTS FROM CURRY COUNTY, 1984

FARM-WELL #	STATIC				DRAW				TOTAL				PUMP				EFFICIENCY				FUEL COST PER										
	FT	FT	FT	FT	FT	FT	FT	FT	FT	HP	HP	HP	HP	HP	HP	%	%	%	%	MCF/	AC-FT	AC-FT	AC-FT	AC-FT	HOUR	HOUR	HOUR	HOUR	\$	\$	\$
FREE DISCHARGE, NATURAL GAS POWERED PLANTS																															
1-2	288	27	331	405	34	53	251	64	21	14	3.70	34.71	2.61	0.10																	
4-1	250	28	284	744	53	94	391	57	24	14	3.70	29.51	4.07	0.10																	
4-4	240	26	283	800	57	89	403	64	22	14	3.70	28.23	4.19	0.10																	
8-1	350	12	369	715	67	115	523	58	22	13	3.70	41.02	5.44	0.11																	
9-1	330	50	384	325	33	86	372	38	23	9	3.70	64.28	3.88	0.17																	
10-1	401	9	414	340	36	57	272	62	21	13	3.70	44.84	2.83	0.11																	
12-1	260	36	312	450	36	58	276	61	21	13	3.70	34.37	2.87	0.11																	
12-2	260	31	298	675	51	66	274	77	24	19	3.70	22.79	2.85	0.08																	
12-3	260	40	309	450	35	65	311	54	21	11	3.70	38.80	3.24	0.13																	
12-5	260	26	297	775	58	92	417	63	22	14	3.70	30.16	4.34	0.10																	
12-6	260	26	286	520	38	76	380	50	20	10	3.70	41.04	3.96	0.14																	
AVERAGES	287	28	324	564	45	77	352	59	22	13	3.70	37.25	3.66	0.11																	
SPRINKLER, NATURAL GAS POWERED PLANTS																															
1-1	274	41	407	675	69	118	514	59	23	14	3.70	42.72	5.35	0.10																	
5-1	256	36	355	650	58	73	319	80	23	18	3.70	27.50	3.32	0.08																	
11-1	360	26	387	150	15	67	336	22	20	4	3.70	125.6	3.50	0.32																	
11-2	360	36	411	510	53	80	398	67	20	13	3.70	43.78	4.14	0.11																	
12-7	267	38	458	1000	116	154	669	75	23	17	3.70	37.56	6.97	0.08																	
AVERAGES	303	35	404	597	62	98	447	61	22	13	3.70	55.43	4.66	0.14																	
FREE DISCHARGE, ELECTRIC POWERED PLANTS																															
1-3	274	37	314	475	38	87	94	40	92	44	0.08	64.22	5.62	0.20																	
6-2	338	15	356	415	37	101	110	34	92	37	0.08	86.14	6.58	0.24																	
7-1	250	30	289	685	50	87	95	53	92	57	0.08	45.03	5.68	0.16																	
12-4	260	43	434	210	23	68	74	31	92	34	0.06	85.89	3.32	0.20																	
AVERAGES	280	31	348	446	37	86	93	39	92	43	0.08	70.32	5.30	0.20																	

RESULTS FROM CURRY COUNTY, CONTINUED

SPRINKLER, ELECTRIC POWERED PLANTS														
2-1	235	24	290	920	67	86	95	71	91	78	0.08	33.44	5.66	0.12
2-2	234	19	385	904	88	122	132	66	92	72	0.08	47.40	7.89	0.12
2-3	235	29	273	760	52	81	90	58	91	64	0.08	38.31	5.36	0.14
2-4A	225	10	272	700	48	85	93	51	91	57	0.08	43.27	5.58	0.16
2-4B	225	10	272	800	55	85	93	59	91	65	0.08	37.86	5.58	0.14
2-4C	225	10	272	900	62	85	93	66	91	73	0.08	33.65	5.58	0.12
2-5A	235	40	410	700	72	120	131	56	92	60	0.08	60.47	7.79	0.15
2-5B	235	40	410	800	83	120	131	63	92	69	0.08	52.91	7.79	0.13
2-5C	235	40	410	900	93	120	131	71	92	78	0.08	47.03	7.79	0.11
3-1	243	13	341	770	66	118	129	52	92	56	0.08	54.12	7.67	0.16
4-2	250	25	285	900	65	105	115	57	92	62	0.08	41.28	6.84	0.14
4-3A	235	20	407	800	82	130	141	58	92	63	0.08	57.25	8.43	0.14
4-3B	235	20	407	900	93	130	141	65	92	71	0.08	50.89	8.43	0.13
4-3C	235	20	407	1000	103	130	141	73	92	79	0.08	45.80	8.43	0.11
6-1	206	56	445	710	80	106	115	69	92	75	0.06	39.55	5.17	0.09
7-2	226	45	278	750	53	84	93	57	90	63	0.06	30.10	4.16	0.11
12-8	264	7	439	720	80	131	142	56	92	61	0.06	48.10	6.37	0.11
AVERAGES	234	25	353	820	73	108	118	62	91	68	0.08	44.79	6.74	0.13

PUMP TEST RESULTS FROM DONA ANA COUNTY, 1984

FARM-WELL #	STATIC LEVEL		DRAW DOWN		TOTAL HEAD		PUMP FLOW		POWER		EFFICIENCY		FUEL COST PER		
	FT	FT	FT	FT	FT	FT	GPM	HP	HP	HP	%	%	MCF/KWH	AC-FT/HOUR	AC-FT/FT
FREE DISCHARGE, ELECTRIC POWERED PLANTS															
1-1	23	26	51	2156	28	92	101	30	92	28	0.06	11.38	4.52	0.22	
1-2	25	17	45	2700	31	83	90	37	92	34	0.06	8.14	4.04	0.18	
1-3	25	37	66	2750	46	118	129	39	92	36	0.06	11.39	5.77	0.17	
1-4	25	36	64	2145	35	99	108	35	92	32	0.06	12.22	4.82	0.19	
1-5	10	17	30	2380	18	114	125	16	92	14	0.06	12.78	5.60	0.43	
1-6	9	15	25	1180	7	24	26	31	90	28	0.06	5.44	1.18	0.22	
1-7	20	81	109	2537	70	132	144	53	92	49	0.06	13.76	6.43	0.13	
1-8	13	58	75	2600	49	98	108	50	92	46	0.06	10.07	4.82	0.13	
1-9	16	51	71	2600	47	88	96	53	92	49	0.06	8.95	4.28	0.13	
1-10	14	49	67	2809	48	123	134	39	92	35	0.06	11.64	6.02	0.17	
AVERAGES	18	38	60	2386	38	97	106	38	91	35	0.06	10.58	4.75	0.20	

PUMP TEST RESULTS FROM HIDALGO COUNTY, 1984

FARM-WELL #	STATIC LEVEL FT	DRAW DOWN FT	TOTAL HEAD FT	PUMP FLOW GPM	WATER MOTOR HP	POWER		EFFICIENCY		FUEL COST PER				
						MOTOR HP	FUEL PUMP %	MOTOR %	PLANT %	MCF/KWH	AC-FT/HOUR	\$	\$	\$
FREE DISCHARGE, NATURAL GAS POWERED PLANTS														
1-1A	65	18	94	500	12	23	116	52	20	10	3.60	12.72	1.17	0.14
1-1B	65	22	102	660	17	31	185	55	17	9	3.60	15.27	1.86	0.15
AVERAGES	65	20	98	580	14	27	151	53	18	10	3.60	14.00	1.51	0.14
FREE DISCHARGE, ELECTRIC POWERED PLANTS														
1-1	70	15	89	245	6	16	18	34	88	30	0.07	19.66	0.89	0.22
1-2	85	3	89	126	3	10	12	28	87	24	0.07	24.63	0.57	0.28
2-1	28	7	37	577	5	12	15	44	83	36	0.07	6.78	0.72	0.18
3-1A	18	3	73	1340	25	35	39	70	90	63	0.07	7.70	1.90	0.11
3-1B	18	3	73	2205	41	35	39	115	90	104	0.07	4.68	1.90	0.06
3-1C	18	7	47	1525	18	38	42	48	90	43	0.07	7.25	2.04	0.15
3-1D	18	7	47	2505	30	38	42	79	90	71	0.07	4.41	2.04	0.09
3-2A	15	59	76	950	18	27	30	68	91	62	0.07	8.20	1.43	0.11
3-2B	15	59	76	1250	24	27	30	90	91	81	0.07	6.23	1.43	0.08
3-3	15	10	33	1210	10	22	24	47	90	42	0.07	5.22	1.16	0.16
4-1A	15	8	34	1475	13	41	45	31	91	28	0.07	8.02	2.18	0.24
4-1B	15	6	59	1220	18	42	46	44	91	40	0.07	9.90	2.22	0.17
5-1A	11	34	47	1200	14	29	32	49	90	44	0.07	7.12	1.57	0.15
5-1B	11	34	47	1500	18	29	32	61	90	55	0.07	5.69	1.57	0.12
5-2	11	8	50	2500	32	67	74	47	91	43	0.07	7.81	3.59	0.16
6-1A	38	22	119	1700	51	90	98	57	92	52	0.07	15.18	4.75	0.13
6-1B	38	22	84	2000	42	89	97	48	92	44	0.07	12.81	4.72	0.15
6-2A	14	9	83	1700	36	49	54	73	91	66	0.07	8.33	2.61	0.10
6-2B	14	11	60	1820	28	46	51	59	91	54	0.07	7.42	2.49	0.12
6-2C	14	12	29	2086	15	40	44	38	90	34	0.12	9.92	3.81	0.34
6-3	15	5	21	1470	8	20	23	38	90	34	0.09	5.63	1.52	0.27
6-4	12	9	22	1325	7	19	21	39	88	34	0.09	5.91	1.44	0.27
7-1	17	16	59	1750	26	44	49	59	90	53	0.09	10.19	3.28	0.17

RESULTS FROM HIDALGO COUNTY, CONTINUED

8-1	198	23	312	2840	224	274	294	82	93	76	0.05	20.98	10.97	0.07
8-2	100	100	257	1725	112	164	178	68	92	63	0.05	20.93	6.65	0.08
8-3	100	66	172	1400	61	105	114	58	92	53	0.05	16.50	4.25	0.10
8-4	100	80	188	1200	57	89	97	64	92	59	0.05	16.34	3.61	0.09
8-5	100	35	141	1100	39	71	78	55	91	50	0.05	14.44	2.92	0.10
AVERAGES	24	17	63	1457	22	39	43	57	90	51	0.07	9.35	2.18	0.16

PUMP TEST RESULTS FROM LEA COUNTY, 1984

#-#	STATIC		DRAW TOTAL		PUMP		FLOW		WATER MOTOR		FUEL PUMP		EFFICIENCY		MCF /		FUEL COST PER		
	FT	FT	FT	FT	FT	GPM	HP	HP	HP	HP	%	%	%	%	KWH	AC-FT	HOUR	AC-FT	
SPRINKLER, NATURAL GAS POWERED PLANTS																			
1-1A	44	8	142	685	25	NA	163	NA	15	3.65	13.21	1.67	0.09						
1-1B	44	1	134	165	6	NA	124	NA	5	3.65	41.55	1.26	0.31						
1-2	30	14	120	405	12	NA	132	NA	9	4.70	23.31	1.74	0.19						
AVERAGES	39	8	132	418	14	NA	140	NA	10	4.00	26.03	1.56	0.20						

NA-DATA NOT AVAILABLE

PUMP TEST RESULTS FROM LUNA COUNTY, 1984

FARM-WELL #	FARM-WELL #	STATIC LEVEL FT	DRAW DOWN FT	TOTAL HEAD FT	PUMP FLOW GPM	WATER MOTOR HP	POWER		EFFICIENCY		FUEL COST PER			
							MOTOR HP	FUEL HP	PUMP %	MOTOR %	MCF/KWH	AC-FT/HOUR	AC-FT/FT	\$
FREE DISCHARGE, NATURAL GAS POWERED PLANTS														
1-1A	95	23	128	125	4	NA	236	NA	NA	2	3.60	103.0	2.37	0.80
1-1B	103	72	175	348	15	NA	252	NA	NA	6	3.60	39.57	2.54	0.23
1-1C	103	157	260	348	23	NA	252	NA	NA	9	3.60	39.57	2.54	0.15
1-1D	103	27	130	262	9	NA	166	NA	NA	5	3.60	34.60	1.67	0.27
1-1E	103	97	200	262	13	NA	166	NA	NA	8	3.60	34.60	1.67	0.17
1-2	95	22	133	775	26	NA	264	NA	NA	10	3.60	18.61	2.66	0.14
1-3	95	139	241	720	44	NA	323	NA	NA	14	3.60	24.48	3.25	0.10
2-2	95	54	174	960	42	NA	358	NA	NA	12	3.60	20.36	3.60	0.12
2-4	90	60	164	580	24	NA	264	NA	NA	9	3.60	24.90	2.66	0.15
2-6	88	94	193	600	29	NA	265	NA	NA	11	3.60	24.09	2.66	0.12
3-1	90	60	158	800	32	NA	271	NA	NA	12	3.60	18.49	2.72	0.12
3-3	154	45	212	1010	54	NA	352	NA	NA	15	3.60	19.04	3.54	0.09
6-1	166	36	219	600	33	NA	296	NA	NA	11	3.60	26.92	2.97	0.12
8-2	227	66	297	325	24	NA	336	NA	NA	7	3.60	56.42	3.38	0.19
12-1	214	60	296	485	36	NA	302	NA	NA	12	3.60	33.99	3.04	0.11
12-2	217	26	259	475	31	NA	254	NA	NA	12	3.60	29.16	2.55	0.11
12-3	215	48	276	650	45	NA	383	NA	NA	12	3.60	32.20	3.85	0.12
12-11	200	41	246	490	30	NA	321	NA	NA	9	3.60	35.77	3.23	0.15
16-1A	170	117	304	410	31	NA	287	NA	NA	11	3.60	38.28	2.89	0.13
16-1B	170	117	304	445	34	NA	287	NA	NA	12	3.60	38.27	2.89	0.13
AVERAGES	140	68	218	534	29	NA	282	NA	NA	10	3.60	34.62	2.83	0.18
FREE DISCHARGE, ELECTRIC POWERED PLANTS														
1-4	95	47	147	155	6	11	13	53	83	44	0.09	30.91	0.88	0.21
1-5	95	47	153	157	6	12	15	49	83	40	0.09	34.88	1.01	0.23
2-1	90	50	147	445	17	35	39	47	90	42	0.09	32.30	2.65	0.22
2-3	90	83	187	320	15	46	51	33	90	29	0.09	58.51	3.45	0.31
2-5	77	37	137	450	16	29	34	54	83	45	0.09	27.92	2.31	0.20

RESULTS FROM LUNA COUNTY, CONTINUED

3-2	83	28	118	725	22	45	50	48	90	43	0.09	25.22	3.37	0.21
4-1	106	39	154	375	15	25	28	59	90	53	0.05	14.92	1.03	0.10
5-1	110	32	150	400	15	25	28	61	90	55	0.05	14.06	1.04	0.09
7-1	70	34	105	160	4	13	15	33	87	29	0.05	18.67	0.55	0.18
7-2	70	32	103	215	6	14	16	40	87	35	0.05	15.23	0.60	0.15
7-3	98	70	176	335	15	27	30	56	90	50	0.05	18.00	1.11	0.10
7-4	98	92	195	360	18	24	27	73	90	66	0.05	15.16	1.01	0.08
7-5	100	29	132	255	9	18	20	46	90	42	0.05	16.24	0.76	0.12
8-1	225	48	283	285	20	40	45	51	90	46	0.09	56.95	2.99	0.20
9-1	100	78	185	130	6	11	14	53	83	44	0.09	38.66	0.93	0.21
10-1	120	100	222	1365	77	93	102	82	92	75	0.05	15.08	3.79	0.07
10-2	384	36	429	638	69	126	137	55	92	51	0.05	43.42	5.10	0.10
10-3	361	62	439	850	94	174	189	54	92	50	0.05	45.05	7.05	0.32
10-4	252	10	277	1000	70	120	131	58	92	53	0.05	26.51	4.88	0.35
10-5	263	6	272	870	60	98	106	61	92	56	0.05	24.76	3.97	0.29
10-6	272	8	277	786	55	97	105	57	92	52	0.05	27.19	3.94	0.28
11-1	180	75	264	675	45	72	79	62	91	57	0.09	42.91	5.33	0.22
11-2	196	54	254	598	38	54	60	72	90	64	0.09	36.34	4.00	0.18
12-4	205	50	281	450	32	49	54	65	90	59	0.09	44.08	3.65	0.14
12-5	209	42	263	480	32	62	68	51	91	47	0.09	51.76	4.57	0.19
12-6	160	52	216	300	16	30	34	54	90	49	0.09	40.74	2.25	0.12
12-7	158	6	167	547	23	47	52	49	90	44	0.09	34.96	3.52	0.23
12-8	170	20	197	640	32	47	52	68	90	61	0.09	29.55	3.48	0.20
12-9	171	4	176	84	4	26	29	14	90	13	0.09	126.6	1.96	0.12
12-10	190	34	226	425	24	55	61	44	90	40	0.09	52.21	4.09	0.20
12-12	187	28	262	270	18	35	41	50	87	44	0.09	55.03	2.74	0.12
12-13	182	38	206	462	24	44	50	55	88	48	0.09	39.51	3.36	0.18
13-1	81	24	107	200	5	8	10	67	83	55	0.05	9.93	0.37	0.07
13-2	70	66	138	53	2	7	9	25	83	21	0.05	34.28	0.33	0.05
14-1	140	36	181	500	23	32	36	70	90	63	0.09	26.33	2.42	0.15
15-1	90	169	283	665	48	62	69	77	90	69	0.05	21.00	2.57	0.18
15-2	90	140	243	335	21	32	36	64	90	58	0.05	21.61	1.33	0.11
15-3	90	74	170	180	8	23	26	33	90	30	0.05	29.21	0.97	0.11
15-4	90	85	183	770	36	66	72	54	91	49	0.05	19.08	2.70	0.30
15-5	90	132	232	365	21	33	38	64	89	57	0.05	20.84	1.40	0.12
15-6	90	110	206	285	15	31	34	48	89	43	0.05	24.50	1.29	0.12
15-7	110	22	135	305	10	26	29	40	88	36	0.05	19.40	1.09	0.16

RESULTS FROM LUNA COUNTY, CONTINUED

15-8	110	62	176	485	22	43	48	50	90	45	0.05	19.96	1.78	0.20
15-9	110	50	168	235	10	32	35	31	90	28	0.05	30.50	1.32	0.16
15-10	110	60	174	620	27	43	47	64	90	57	0.05	15.51	1.77	0.20
16-2	120	34	170	560	24	37	42	64	90	58	0.09	27.06	2.79	0.18
17-1	150	20	180	525	24	39	43	61	90	55	0.05	16.64	1.61	0.18
17-2	149	100	258	530	35	60	66	58	90	52	0.05	25.32	2.47	0.19
AVERAGES	143	53	204	455	26	45	50	54	89	48	0.07	31.55	2.45	0.18

 NA-DATA NOT AVAILABLE

PUMP TEST RESULTS FROM ROOSEVELT COUNTY, 1984

FARM-WELL #	STATIC LEVEL		DRAW DOWN		TOTAL HEAD		PUMP FLOW		POWER WATER MOTOR		EFFICIENCY PUMP MOTOR		FUEL COST PER			
	FT	FT	FT	FT	FT	FT	GPM	HP	HP	HP	%	%	MCF/KWH	AC-FT/HOUR	AC-FT	
SPRINKLER, NATURAL GAS POWERED PLANTS																
2-4	152	22	311	625	49	77	351	64	22	14	3.70	31.56	3.63	0.10		
3-1	175	24	311	815	64	81	367	79	22	17	3.70	25.24	3.79	0.08		
AVERAGES	164	23	311	720	57	79	359	71	22	16	3.70	28.40	3.71	0.09		
SPRINKLER, ELECTRIC POWERED PLANTS																
1-1	185	20	236	900	54	74	82	72	91	66	0.08	29.45	4.88	0.12		
2-1A	150	40	267	945	64	86	94	74	92	68	0.06	24.18	4.21	0.09		
2-1B	150	40	273	905	62	85	93	73	92	67	0.06	25.10	4.18	0.09		
2-2A	145	45	315	1075	86	108	136	79	79	63	0.06	30.80	6.10	0.10		
2-2B	145	43	368	890	83	107	117	78	92	71	0.06	31.86	5.22	0.09		
2-3	160	42	324	1175	96	123	134	78	92	72	0.06	27.74	6.00	0.09		
AVERAGES	156	38	297	982	74	97	109	76	89	68	0.06	28.19	5.10	0.10		

PUMP TEST RESULTS FROM TORRANCE COUNTY, 1984

FARM-WELL #	STATIC			DRAW TOTAL			PUMP			POWER			EFFICIENCY			FUEL COST PER		
	LEVEL	FT	DOWN	FT	HEAD	FT	FLOW	GPM	HP	MOTOR	HP	FUEL	PUMP	MOTOR	PLANT	MCF/KWH	AC-FT/HOUR	AC-FT/HOUR
FREE DISCHARGE, NATURAL GAS POWERED PLANTS																		
2-2	98	82	183	415	19	37	185	52	20	10	4.10	27.74	2.12	0.15				
3-1	99	26	127	837	27	47	234	57	20	11	4.10	17.41	2.68	0.14				
5-1	129	43	177	333	15	38	190	39	20	8	4.10	35.40	2.17	0.20				
6-1	120	50	184	600	28	55	240	51	23	12	4.10	24.85	2.75	0.14				
11-1	135	0	143	900	33	46	218	71	21	15	4.10	15.05	2.49	0.11				
AVERAGES	116	40	163	617	24	45	213	54	21	11	4.10	24.09	2.44	0.15				
SPRINKLER, NATURAL GAS POWERED PLANTS																		
3-2	115	18	233	481	28	NA	216	NA	NA	13	4.10	27.88	2.47	0.12				
6-4	100	41	233	700	41	NA	267	NA	NA	15	4.10	23.70	3.06	0.10				
7-1	93	59	229	700	40	NA	256	NA	NA	16	4.10	22.76	2.93	0.10				
8-1A	115	16	285	790	57	NA	453	NA	NA	13	4.10	35.67	5.19	0.13				
8-1B	115	16	285	920	66	NA	453	NA	NA	15	4.10	30.63	5.19	0.11				
12-1A	100	84	237	390	23	NA	252	NA	NA	9	4.10	40.24	2.89	0.17				
12-1B	100	84	237	440	26	NA	252	NA	NA	10	4.10	35.67	2.89	0.15				
AVERAGES	105	45	248	632	40	NA	307	NA	NA	13	4.10	30.94	3.52	0.12				
FREE DISCHARGE, ELECTRIC POWERED PLANTS																		
2-1	100	24	125	515	16	31	35	52	90	47	0.07	17.76	1.68	0.14				
9-1	100	75	181	440	20	33	37	61	90	55	0.07	22.04	1.79	0.12				
9-2	100	75	186	330	16	41	45	38	90	34	0.07	36.30	2.21	0.20				
9-3	100	75	183	600	28	73	80	38	92	35	0.07	35.04	3.87	0.14				
10-1	100	95	199	610	31	54	60	56	91	51	0.07	25.79	2.90	0.13				
AVERAGES	100	69	175	499	22	47	51	49	91	44	0.07	27.39	2.49	0.16				
SPRINKLER, ELECTRIC POWERED PLANTS																		
1-1	128	60	314	252	20	32	35	62	91	56	0.07	36.99	1.72	0.11				
1-2	120	73	297	510	38	74	80	52	92	48	0.07	41.54	3.90	0.14				

RESULTS FROM TORRANCE COUNTY, CONTINUED

1-3	125	195	445	200	22	57	63	39	91	36	0.07	83.06	3.06	0.19
1-4	125	81	331	460	38	56	61	69	91	63	0.07	35.11	2.97	0.11
1-5	125	27	308	550	43	82	90	52	91	48	0.07	43.08	4.36	0.14
4-1	120	94	311	227	18	42	47	42	90	38	0.07	54.13	2.26	0.17
6-2	115	106	297	795	60	93	101	64	92	59	0.07	33.40	4.89	0.11
6-3	81	155	317	790	63	84	93	76	90	68	0.07	31.02	4.51	0.10
AVERAGES	117	99	328	473	38	65	71	57	91	52	0.07	44.79	3.46	0.13

 NA-DATA NOT AVAILABLE

PUMP TEST RESULTS FROM CHAVES COUNTY, 1985

FARM-WELL #	STATIC LEVEL		DRAW DOWN	TTL HEAD	Q	POWER		EFFICIENCY		FUEL COST PER					
	FT	FT				HP	HP	WATER MOTOR	FUEL	PUMP MOTOR	PLANT	MCF	AC-FT	AC-FT	AC-FT
	FT	FT	FT	FT	GPM	HP	HP	%	%	KWH	AC-FT	HOUR	FT	FT	
FREE DISCHARGE, NATURAL GAS POWERED PLANTS															
1-1	4	16	35	2058	18	66	353	27	19	5	4.42	11.50	4.36	0.33	
1-2A	3	9	47	2607	31	109	513	29	21	6	4.42	13.18	6.33	0.28	
1-2B	3	7	45	2350	27	96	461	28	21	6	4.42	13.16	5.70	0.29	
1-2C	5	25	42	2024	22	63	327	34	19	7	4.42	10.83	4.03	0.26	
AVERAGES	4	14	42	2260	24	84	413	29	20	6	4.42	12.17	5.10	0.29	
FREE DISCHARGE, ELECTRIC POWERED PLANTS															
3-1	30	70	110	492	14	50	56	27	90	24	0.09	41.63	3.77	0.38	
3-2	50	120	177	678	30	44	49	69	90	62	0.09	26.25	3.28	0.15	
3-3	60	140	161	813	33	66	75	50	88	44	0.09	33.73	5.05	0.21	
AVERAGES	47	110	149	661	26	53	60	49	89	43	0.09	33.87	4.03	0.25	
SPRINKLER, ELECTRIC POWERED PLANTS															
2-1	34	8	154	312	12	19	22	63	87	55	0.07	20.54	1.18	0.13	
3-4	60	90	244	826	51	94	105	54	90	48	0.09	46.34	7.05	0.19	
AVERAGES	47	49	199	569	32	57	63	59	89	52	0.08	33.44	4.11	0.16	

PUMP TEST RESULTS FROM DONA ANA COUNTY, 1985

FARM-WELL #	STATIC DRAW				PUMP				POWER				EFFICIENCY				FUEL COST PER					
	LEVEL	DOWN	HEAD	TOTAL	FLOW	WATER	MOTOR	FUEL	HP	HP	HP	HP	%	PUMP	MOTOR	PLANT	MCF/	KWH	AC-FT	HOUR	AC-FT	
	FT	FT	FT	FT	GPM	HP	HP	HP	HP	HP	HP	%	%	%	%	%	\$	\$	\$	\$	\$	
FREE DISCHARGE, NATURAL GAS POWERED PLANTS																						
1-1	12	19	37	1215	11	37	195	31	19	6	5.00	12.19	2.73	0.33								
1-2	7	26	43	1160	13	20	136	63	15	9	5.00	8.87	1.89	0.21								
AVERAGES	10	23	40	1188	12	29	165	47	17	8	5.00	10.53	2.31	0.27								
FREE DISCHARGE, ELECTRIC POWERED PLANTS																						
2-1	24	54	83	2517	52	93	102	56	92	52	0.07	16.32	5.31	0.20								
2-2	30	55	115	2596	75	100	110	75	92	69	0.07	17.11	5.73	0.15								
2-3	12	38	51	1454	19	53	58	35	92	32	0.07	16.14	3.02	0.32								
2-4	37	38	87	1687	37	83	90	45	92	41	0.07	21.67	4.71	0.25								
2-5	4	1	6	3300	5	22	25	23	88	20	0.07	3.04	1.30	0.51								
2-6	4	5	10	3400	9	22	25	40	88	36	0.07	2.92	1.28	0.29								
2-7	10	88	101	2595	66	117	127	56	92	52	0.07	21.00	6.64	0.21								
2-8	12	24	39	2000	20	47	52	43	90	38	0.07	10.47	2.70	0.27								
2-9	7	13	23	1274	7	24	26	31	92	28	0.07	8.36	1.37	0.36								
2-10	35	45	100	2900	73	88	95	83	92	77	0.07	13.33	4.98	0.13								
2-11	20	85	114	2155	62	141	154	44	92	40	0.07	28.92	8.03	0.25								
2-12	16	41	90	2750	63	128	139	49	92	45	0.07	20.46	7.25	0.23								
2-13	38	62	120	2900	88	118	128	74	92	69	0.07	17.93	6.70	0.15								
2-14	23	28	76	830	16	30	33	53	92	49	0.07	16.01	1.71	0.21								
2-15	26	39	78	2531	50	107	116	47	92	43	0.07	18.54	6.05	0.24								
2-16	25	75	109	2280	62	82	89	76	92	70	0.07	15.87	4.66	0.15								
2-17	38	67	117	2450	72	96	104	75	92	69	0.07	17.23	5.44	0.15								
3-1	376	124	540	21	3	9	10	32	86	28	0.07	139	0.54	0.26								
4-1	365	100	480	17	2	6	7	37	79	29	0.07	117	0.37	0.24								
5-1	365	85	461	44	5	11	13	46	86	40	0.07	82.96	0.67	0.18								
6-1	90	7	102	1807	46	61	67	76	91	69	0.08	12.34	4.10	0.12								
AVERAGES	74	51	138	1977	40	68	75	52	90	47	0.07	29.39	3.93	0.23								

PUMP TEST RESULTS FROM EDDY COUNTY, 1985

FARM-WELL #	STATIC LEVEL			DRAW DOWN			TOTAL HEAD			PUMP FLOW			POWER			EFFICIENCY			FUEL COST PER					
	FT	FT	FT	FT	FT	FT	GPM	HP	HP	HP	HP	HP	HP	HP	%	%	%	MCF/KWH	AC-FT/HOUR	AC-FT/FT	\$	\$	\$	
FREE DISCHARGE, NATURAL GAS POWERED PLANTS																								
10-1	39	18	79	579	11	23	99	49	24	12	4.42	11.41	1.22	0.15										
FREE DISCHARGE, ELECTRIC POWERED PLANTS																								
1-1	12	62	158	822	33	52	57	64	90	57	0.06	17.76	2.69	0.11										
1-2	5	25	154	642	25	44	49	57	90	51	0.06	19.32	2.28	0.13										
1-3	6	35	70	82	1	8	9	19	85	16	0.06	27.57	0.42	0.40										
1-4	82	16	111	356	10	14	17	69	87	60	0.06	11.92	0.78	0.11										
1-5	6	2	123	631	20	30	34	64	90	58	0.06	13.70	1.59	0.11										
1-6	11	9	103	178	5	14	17	33	82	27	0.06	24.61	0.81	0.24										
1-7	9	50	70	843	15	18	20	85	88	74	0.06	6.12	0.95	0.09										
1-8	7	27	79	650	13	23	27	56	87	49	0.06	10.42	1.25	0.13										
1-9	6	23	91	735	17	31	36	54	87	47	0.06	12.37	1.67	0.14										
1-10	85	31	131	537	18	29	33	61	89	54	0.06	15.59	1.54	0.12										
2-1	58	4	67	1700	29	31	35	91	90	82	0.06	5.00	1.56	0.08										
3-1	53	6	62	1195	19	45	52	41	87	36	0.06	10.62	2.34	0.17										
3-2	21	3	32	3067	25	42	46	59	90	53	0.06	3.67	2.07	0.11										
3-3	59	9	71	2262	40	78	93	52	84	43	0.06	9.98	4.16	0.14										
3-4	53	9	66	1610	27	65	73	41	89	37	0.06	10.99	3.26	0.17										
4-1	25	8	35	1728	15	41	46	37	89	33	0.06	6.44	2.05	0.18										
5-1	35	0	38	536	5	10	12	52	85	44	0.06	5.28	0.52	0.14										
6-1	38	0	56	972	14	20	23	67	88	59	0.06	5.79	1.04	0.10										
6-2	38	0	41	917	9	26	30	36	87	31	0.06	8.05	1.36	0.20										
6-3	51	17	74	1030	19	45	50	42	91	39	0.06	11.69	2.22	0.03										
6-4	51	19	76	2513	48	52	57	92	92	85	0.06	5.50	2.55	0.07										
7-1	31	9	44	1895	21	54	60	39	90	35	0.06	7.73	2.70	0.17										
8-1	95	5	110	915	25	45	50	56	90	50	0.06	13.38	2.25	0.12										
9-1	32	14	50	2425	31	34	61	90	56	50	0.06	6.14	2.74	0.12										
11-1	19	12	32	533	4	11	13	39	83	33	0.06	6.09	0.60	0.19										

RESULTS FROM EDDY COUNTY, CONTINUED

12-1	60	12	74	199	4	14	17	26	84	22	0.06	20.26	0.74	0.28
13-1	42	16	72	1413	26	49	54	53	90	48	0.06	9.28	2.41	0.13
14-1	21	28	51	2206	28	89	100	32	89	28	0.06	10.98	4.46	0.22
14-2	65	28	108	1711	47	65	72	72	91	65	0.06	10.15	3.20	0.09
15-1	100	10	117	2081	61	99	107	62	92	57	0.06	12.51	4.79	0.11
16-1	80	50	201	499	25	49	54	52	90	47	0.06	26.36	2.42	0.13
17-1	80	50	122	379	12	24	28	48	89	43	0.06	17.63	1.23	0.14
AVERAGES	42	18	84	1164	22	39	45	55	87	47	0.06	11.97	2.02	0.15

PUMP TEST RESULTS FROM LUNA COUNTY, 1985

FARM-WELL #	STATIC LEVEL	DRAW DOWN	TOTAL HEAD	PUMP			POWER			EFFICIENCY			FUEL COST PER		
				FT	FT	GPM	HP	HP	HP	FUEL	PUMP	MOTOR	PLANT	MCF/KWH	AC-FT
FREE DISCHARGE, NATURAL GAS POWERED PLANTS															
2-5A	90	48	153	698	27	40	262	68	15	10	3.12	17.76	2.28	0.12	
2-5B	90	45	146	591	22	32	230	68	14	9	3.12	18.44	2.01	0.13	
2-5C	90	42	140	473	17	26	197	64	13	8	3.12	19.68	1.71	0.14	
2-5D	90	38	134	397	13	20	175	67	11	8	3.12	20.81	1.52	0.16	
2-5E	90	22	118	200	6	12	134	49	9	4	3.12	31.78	1.17	0.27	
2-6	65	18	126	720	23	NA	153	NA	NA	15	3.12	10.09	1.34	0.08	
3-3	125	97	227	572	33	46	259	71	18	13	3.12	21.46	2.26	0.09	
AVERAGES	91	44	149	521	20	29	202	65	13	10	3.12	20.00	1.76	0.14	
FREE DISCHARGE, ELECTRIC POWERED PLANTS															
1-1	100	40	153	733	28	38	49	75	78	58	0.05	13.48	1.82	0.09	
2-1A	92	53	166	1264	53	64	70	83	92	76	0.13	29.28	6.81	0.18	
2-1B	92	53	177	1062	47	63	69	75	92	69	0.13	34.30	6.71	0.19	
2-2	97	47	161	718	29	44	49	66	91	60	0.13	35.68	4.71	0.22	
2-3	85	43	141	649	23	28	32	82	89	73	0.13	25.57	3.06	0.18	
2-4	88	0	103	535	14	45	50	31	89	28	0.13	49.38	4.86	0.48	
3-1	10	88	126	176	6	9	12	60	77	46	0.13	36.13	1.17	0.29	
3-2	12	24	109	192	5	11	14	48	77	37	0.13	39.42	1.39	0.36	
4-1	120	9	135	351	12	29	33	41	89	36	0.11	42.91	2.77	0.32	
4-2	108	14	134	661	22	33	37	68	90	60	0.11	25.65	3.12	0.19	
4-3	114	11	137	552	19	32	35	60	90	54	0.11	29.25	2.97	0.21	
4-4	126	10	144	408	15	36	40	41	89	37	0.11	45.39	3.41	0.32	
4-5	114	117	245	526	33	44	49	74	90	67	0.11	42.49	4.12	0.17	
4-6	145	116	276	467	33	37	41	87	91	79	0.11	40.25	3.46	0.15	
4-7	132	14	150	648	25	33	36	75	90	68	0.09	19.99	2.38	0.13	
AVERAGES	96	43	157	596	24	36	41	64	87	57	0.11	33.94	3.52	0.23	

NA-DATA NOT AVAILABLE

PUMP TEST RESULTS FROM OTERO COUNTY, 1985

FARM-WELL #	STATIC DRAW TOTAL				PUMP			POWER			EFFICIENCY			FUEL COST PER							
	LEVEL	FT	FT	FT	HEAD	FT	FT	FLOW	GPM	HP	MOTOR	FUEL	PUMP	MOTOR	PLANT	MCF/	KWH	AC-FT	HOUR	AC-FT	/FT
FREE DISCHARGE, NATURAL GAS POWERED PLANTS																					
1-1	112	9	124	160	5	NA	53	NA	NA	NA	NA	NA	NA	9	5.50	27.49	0.81	0.22			
10-1	135	10	146	527	19	NA	205	NA	NA	NA	NA	NA	9	5.00	29.51	2.86	0.20				
10-2	132	21	160	263	11	NA	150	NA	NA	NA	NA	NA	7	5.00	43.32	2.10	0.27				
16-1	230	22	257	475	31	NA	253	NA	NA	NA	NA	NA	12	5.00	40.45	3.54	0.16				
21-1	98	87	189	170	8	NA	147	NA	NA	NA	NA	NA	6	5.00	65.49	2.05	0.35				
AVERAGES	141	30	175	319	15	NA	162	NA	NA	NA	NA	NA	9	5.10	41.25	2.27	0.24				
FREE DISCHARGE, ELECTRIC POWERED PLANTS																					
1-2	185	5	198	90	4.50	9	11	9	11	48	82	39	0.11	56.43	0.94	0.29					
2-1	126	1	145	34	1.23	5	6	5	6	27	76	20	0.11	80.26	0.50	0.55					
3-1	206	16	223	100	5.63	16	19	16	19	35	85	30	0.11	84.85	1.56	0.38					
3-2	196	16	217	100	5.48	9	10	9	10	63	85	54	0.11	45.53	0.84	0.21					
4-1	210	10	221	100	5.58	11	13	11	13	49	85	42	0.11	59.75	1.10	0.27					
5-1	80	22	108	70	1.91	6	8	6	8	31	82	25	0.11	48.06	0.62	0.44					
6-1	88	22	113	120	3.42	9	12	9	12	36	82	30	0.11	43.02	0.95	0.38					
6-2	80	12	95	100	2.40	7	9	7	9	34	82	28	0.11	38.84	0.72	0.41					
7-1	46	5	55	38	0.52	2	3	2	3	30	65	20	0.11	31.50	0.22	0.57					
10-4	93	20	120	113	3.42	18	21	18	21	19	85	16	0.11	83.02	1.73	0.69					
12-1	194	16	211	75	4.00	11	14	11	14	35	82	29	0.11	82.62	1.14	0.39					
13-1	110	75	186	175	8.22	20	25	20	25	42	78	33	0.11	64.19	2.07	0.35					
14-1	120	2	124	40	1.25	3	5	3	5	40	65	26	0.11	53.03	0.39	0.43					
15-1	174	49	224	190	10.75	24	29	24	29	45	82	37	0.11	67.93	2.38	0.30					
15-2	150	78	238	220	13.22	24	29	24	29	55	82	45	0.11	59.75	2.42	0.25					
17-1	132	21	156	366	14.42	33	41	33	41	44	80	35	0.11	49.79	3.36	0.32					
18-1	165	50	216	43	2.35	9	11	9	11	25	83	21	0.11	116.2	0.92	0.54					
19-1	171	49	223	285	16.05	36	40	36	40	45	90	40	0.11	62.90	3.30	0.28					
20-1	155	1	161	36	1.46	5	8	5	8	29	65	19	0.11	96.60	0.64	0.60					
22-1	104	1	105	13	0.33	2	4	2	4	13	65	9	0.11	136.2	0.31	1.30					

RESULTS FROM OTERO COUNTY, CONTINUED														
23-1	105	5	111	67	1.88	5	6	36	81	29	0.11	42.81	0.53	0.39
23-2	100	10	111	50	1.40	6	7	25	79	19	0.11	64.53	0.59	0.58
AVERAGES	136	22	162	110	4.97	12	15	37	79	29	0.11	66.72	1.24	0.45
SPRINKLER, NATURAL GAS POWERED PLANTS														
9-1	125	47	252	350	22	NA	124	NA	NA	18	4.30	23.09	1.49	0.09
9-2	188	47	336	290	25	NA	160	NA	NA	15	4.30	35.79	1.91	0.11
10-3	130	34	251	205	13	NA	80	NA	NA	16	4.30	25.24	0.95	0.10
16-1	230	22	257	475	31	NA	253	NA	NA	12	5.00	40.45	3.54	0.16
21-1	98	87	189	170	8	NA	147	NA	NA	6	5.00	65.49	2.05	0.35
AVERAGES	154	47	257	298	20	NA	153	NA	NA	13	4.58	38.01	1.99	0.16

 NA-DATA NOT AVAILABLE

PUMP TEST RESULTS FROM SIERRA COUNTY, 1985

#-#	STATIC		DRAW TOTAL		PUMP		FLOW		WATER MOTOR		POWER		EFFICIENCY		FUEL COST PER						
	FT	FT	FT	FT	FT	FT	GPM	HP	HP	HP	HP	HP	HP	%	%	%	MCF/	AC-FT	AC-FT	AC-FT	
FARM-WELL	LEVEL	DOWN	HEAD	HEAD	HEAD	HEAD	FLOW	MOTOR	FUEL	PUMP	MOTOR	PLANT	PLANT	KWH	AC-FT	AC-FT	HOUR	HOUR	HOUR	\$/	\$/
FREE DISCHARGE, DIESEL POWERED PLANTS																					
3-1	9	31	48	1726	21	53	196	39	27	11	1.03	12.11	3.85	0.25							
FREE DISCHARGE, PROPANE POWERED PLANTS																					
2-1	10	4	21	707	4	10	59	37	17	6	0.82	10.30	1.34	0.50							
2-2	17	8	27	713	5	NA	88	NA	NA	6	0.82	15.93	2.09	0.58							
AVERAGES	14	6	24	710	4	10	73	37	17	6	0.82	13.12	1.72	0.54							
FREE DISCHARGE, ELECTRIC POWERED PLANTS																					
1-1	27	1	58	600	9	18	22	48	85	40	0.08	11.88	1.31	0.21							

NA-DATA NOT AVAILABLE

PUMP TEST RESULTS FROM SOCORRO COUNTY, 1985

#-#	STATIC LEVEL		DRAW DOWN		TOTAL HEAD		PUMP FLOW		POWER		EFFICIENCY		FUEL COST PER								
	FT	FT	FT	FT	FT	FT	GPM	HP	HP	HP	HP	%	%	%	MCF/	AC-FT	HOUR	\$	AC-FT	\$	
FREE DISCHARGE, ELECTRIC POWERED PLANTS																					
1-1	12	62	79	1920	38	57	63	67	91	60	0.09	11.99	4.24	0.15							
1-2	5	25	33	1400	12	22	24	54	90	48	0.09	6.29	1.62	0.19							
1-3	6	35	52	1885	25	42	46	59	90	53	0.09	8.97	3.11	0.17							
1-4	8	29	41	2084	22	27	31	79	88	69	0.09	5.44	2.09	0.13							
1-5	6	2	11	1571	4	33	37	13	90	12	0.09	8.50	2.46	0.77							
1-6	11	9	28	768	5	7	8	79	85	67	0.09	3.82	0.54	0.14							
1-7	9	50	33	1816	15	45	50	34	91	31	0.09	9.96	3.33	0.30							
1-8	7	27	38	1924	18	33	37	55	90	50	0.09	7.01	2.48	0.18							
1-9	6	23	32	1767	14	39	43	37	90	33	0.09	8.96	2.92	0.28							
1-10	8	0	10	466	1	2	3	49	81	40	0.09	2.20	0.19	0.23							
1-11	9	4	19	2670	13	45	50	28	91	26	0.09	6.81	3.35	0.36							
AVERAGES	8	24	34	1661	15	32	36	50	89	44	0.09	7.27	2.39	0.27							

PUMP TEST RESULTS FROM TORRANCE COUNTY, 1985

FARM-WELL #	STATIC			DRAW			TOTAL			PUMP			POWER			EFFICIENCY			FUEL COST PER			
	LEVEL	FT	DOWN	FT	FT	HEAD	FT	FT	FT	GPM	HP	MOTOR	FUEL	PUMP	MOTOR	PLANT	MCF/KWH	AC-FT	AC-FT	AC-FT	AC-FT	
FREE DISCHARGE, NATURAL GAS POWERED PLANTS																						
1-1	75	85	168	466	20	NA	168	NA	NA	12	NA	168	32	NA	NA	12	3.85	21.04	1.81	0.13		
1-2	75	96	180	243	11	NA	321	NA	NA	3	NA	321	99	NA	NA	3	3.85	77.17	3.45	0.43		
1-3	75	105	186	437	21	28	264	28	264	8	73	264	61	49	90	44	3.85	35.22	2.83	0.19		
2-1A	91	0	93	637	15	47	227	47	227	7	32	227	27	57	72	41	3.80	20.51	2.41	0.22		
2-1B	91	0	93	783	18	59	302	59	302	6	31	302	23	36	69	25	3.80	22.26	3.21	0.24		
2-2	129	1	137	553	19	45	237	45	237	8	43	237	26	42	89	34	3.80	24.68	2.51	0.18		
2-3	70	10	87	1050	23	NA	330	NA	330	7	NA	330	50	39	18	7	3.80	18.10	3.50	0.21		
5-1	116	21	138	260	9	48	225	48	225	4	19	225	23	28	23	7	3.69	48.51	2.32	0.35		
5-5	87	61	121	372	11	40	173	40	173	7	28	173	47	47	17	8	3.69	26.05	1.78	0.22		
5-6A	109	30	143	407	15	31	183	31	183	8	17	183	168	48	23	11	3.69	25.13	1.88	0.18		
5-6B	109	33	147	501	19	39	168	39	168	8	17	168	207	39	21	8	3.69	31.51	2.13	0.17		
5-7	138	35	184	367	17	44	207	44	207	7	37	207	478	37	18	7	3.69	32.16	4.93	0.21		
5-12	93	22	155	832	33	88	478	88	478	7	39	478	259	39	18	7	3.69	32.16	4.93	0.21		
AVERAGES	90	40	135	554	17	45	259	45	259	7	39	259	50	47	85	40	3.81	33.44	2.75	0.24		
FREE DISCHARGE, ELECTRIC POWERED PLANTS																						
2-4	101	20	121	423	13	29	32	29	32	40	44	32	99	53	92	49	0.09	27.85	2.17	0.23		
2-5	101	40	145	1318	48	91	99	91	99	49	53	99	61	49	90	44	0.09	27.49	6.67	0.19		
4-1B	125	40	170	635	27	55	61	55	61	44	49	61	48	53	90	47	0.07	28.27	3.30	0.17		
5-2	131	11	156	573	22	43	48	43	48	36	40	48	54	40	90	36	0.07	21.89	2.31	0.14		
5-3	87	56	152	507	19	48	54	48	54	41	57	54	27	57	72	41	0.07	28.01	2.61	0.18		
5-4	115	53	169	263	11	20	27	20	27	25	36	27	23	36	69	25	0.07	27.16	1.31	0.16		
5-8	122	15	140	160	6	16	23	16	23	38	42	23	57	42	89	38	0.07	37.44	1.11	0.01		
5-9	102	19	144	595	22	51	57	51	57	34	47	57	26	47	72	34	0.07	25.30	2.77	0.18		
5-10	100	55	179	198	9	19	26	19	26	40	45	26	66	45	90	40	0.07	34.93	1.27	0.01		
5-11	112	41	180	583	26	59	66	59	66	40	45	66	50	45	90	40	0.07	29.69	3.19	0.17		
AVERAGES	111	32	149	559	21	44	50	44	50	40	47	50	44	47	85	40	0.07	27.93	2.78	0.16		

RESULTS FROM TORRANCE COUNTY, CONTINUED

SPRINKLER, ELECTRIC POWERED PLANTS														
3-1	122	30	254	370	24	49	55	48	90	43	0.07	43.35	2.95	0.17
4-1A	125	60	248	342	21	55	61	39	90	35	0.07	52.43	3.30	0.21
4-2	125	29	215	606	33	74	82	44	91	40	0.07	38.13	4.26	0.18
4-3	81	44	312	296	23	32	36	73	90	65	0.07	34.34	1.87	0.11
4-4	133	20	314	728	58	83	90	70	92	64	0.07	35.25	4.72	0.11
4-5	117	45	235	642	38	98	109	39	90	35	0.07	47.98	5.67	0.20
4-6	124	3	288	230	17	31	40	54	77	41	0.07	49.74	2.11	0.17
AVERAGES	118	33	267	459	31	60	68	52	88	46	0.07	43.03	3.55	0.17

 NA-DATA NOT AVAILABLE

PUMP TEST RESULTS FROM UNION COUNTY, 1985

FARM-WELL	STATIC LEVEL	DRAW DOWN	TOTAL HEAD	PUMP FLOW	WATER	MOTOR	FUEL	EFFICIENCY		FUEL COST PER				
								PUMP	MOTOR	MCF/GAL	KWH	AC-FT	HOUR	AC-FT /FT
#-#	FT	FT	FT	FT	HP	HP	HP	%	%	%	\$	\$	\$	\$
FREE DISCHARGE, NATURAL GAS POWERED PLANTS														
3-1	219	34	269	849	58	109	463	53	24	12	3.98	32.87	5.14	0.12
3-3	219	49	284	879	63	108	413	58	26	15	3.98	28.38	4.60	0.10
5-1	182	20	217	994	54	65	276	84	24	20	3.48	14.67	2.68	0.07
8-1	156	21	202	221	11	25	161	45	15	7	3.62	40.08	1.63	0.20
8-4	180	23	215	699	38	115	588	33	20	6	3.62	46.22	5.95	0.21
10-1	160	23	190	866	41	75	462	56	16	9	3.62	29.28	4.67	0.15
AVERAGES	186	28	229	751	44	83	394	55	21	12	3.72	31.92	4.11	0.14
SPRINKLER, NATURAL GAS POWERED PLANTS														
1-1	1	144	297	1030	77	170	671	45	25	12	3.06	30.23	5.73	0.10
1-2	225	75	303	1042	80	98	448	81	22	18	3.06	19.96	3.83	0.07
2-1	156	31	202	221	11	25	116	45	21	10	3.62	28.90	1.18	0.14
3-2	224	49	392	1045	104	160	583	65	27	18	3.98	33.69	6.48	0.09
6-1	225	75	360	1163	106	124	615	85	20	34	3.62	29.03	6.21	0.08
7-1	270	60	466	662	78	118	474	66	25	16	3.62	39.35	4.80	0.08
8-2	156	13	238	490	29	51	251	58	20	12	3.62	28.14	2.54	0.12
8-3	142	2	199	389	20	79	341	25	23	6	3.62	48.10	3.45	0.24
9-1	200	33	291	446	33	79	425	41	19	8	3.62	52.30	4.29	0.18
9-2	186	36	293	596	44	69	428	64	16	10	3.62	39.42	4.33	0.13
AVERAGES	179	52	304	708	58	97	435	58	22	14	3.54	34.91	4.28	0.12
SPRINKLER, ELECTRIC POWERED PLANTS														
4-1	250	9	329	1207	100	156	170	64	92	59	0.09	51.29	11.39	0.16
4-2	250	9	395	1026	102	156	170	65	92	60	0.09	60.32	11.39	0.15
AVERAGES	250	9	362	1116	101	156	170	65	92	60	0.09	55.81	11.39	0.15

TEST RESULTS FROM UNION COUNTY, CONTINUED

SPRINKLER, DIESEL POWERED PLANTS														
2-2	95	59	239	840	51	80	365	63	22	14	0.95	48.90	7.56	0.21
2-3	95	69	298	948	71	105	400	68	26	18	0.95	47.55	8.30	0.16
2-4	110	41	286	856	62	96	292	64	33	21	0.95	38.47	6.06	0.13
AVERAGES	100	56	274	881	61	94	352	65	27	18	0.95	44.97	7.31	0.17

PUMP TEST RESULTS FROM VALENCIA COUNTY, 1985

#-#	STATIC DRAW TOTAL		PUMP		POWER		EFFICIENCY		FUEL COST PER					
	FT	FT	FT	GPM	HP	HP	FUEL	PUMP	MOTOR	PLANT	MCF/	AC-FT	HOUR	AC-FT
FARM-WELL	LEVEL	DOWN	HEAD	FLOW	WATER	MOTOR	FUEL	PUMP	MOTOR	PLANT	KWH	AC-FT	HOUR	/FT
FREE DISCHARGE, NATURAL GAS POWERED PLANTS														
1-2	10	20	37	935	9	30	199	29	15	4	5.00	16.12	2.78	0.44
1-3	11	16	34	1700	15	36	179	41	20	8	5.00	8.00	2.51	0.24
AVERAGES	11	18	35	1318	12	33	189	35	18	6	5.00	12.06	2.64	0.34
FREE DISCHARGE, ELECTRIC POWERED PLANTS														
1-1	6	23	30	100	1	2	3	38	65	25	0.10	12.49	0.23	0.42
2-1	5	25	33	2428	20	46	51	44	90	40	0.10	8.46	3.78	0.26
AVERAGES	6	24	32	1264	10	24	27	41	78	32	0.10	10.48	2.01	0.34