APPENDIX E

Water Quality Database

Appendix D

DONA ANA COUNTY WELLS THAT CONTAIN CONSTITUENTS HIGHER THAN NEW MEXICO GROUND WATER STANDARDS
FROM EID, 1980

WATER SYSTEM	LOCATION (lat long)	TOWN	BASIN	CONSTITUENT	MEASURED VALUE	UNITS	MCL (or REC. LIMIT)
Anapra	31 52 14 106 30 05	Anapra	Mesilla	sulfate	733.4	mg/L	600
				chloride	283.2	mg/L	250
				conductance	2564	micromhos	1540
				total filtered residue	1738	mg/L	1000
Anthony well #1	32 00 00 106 36 15	Anthony	Mesilla	conductance	1940	micromhos	1540
				chloride	358.2	mg/L	250
				total filtered residue	1030	mg/L	1000
Anthony well #2	32 00 00 106 36 15	Anthony	Mesilla	conductance	1633	micromhos	1540
				chloride	332.9	mg/L	250
Anthony well #3	32 00 15 106 36 00	Anthony	Mesilla	chloride	330.3	mg/L	250
				conductance	1911	micromhos	1540
				total filtered residue	1025	mg/L	1000
Berino MDWCA well #1	32 04 22 106 35 14	Berino	Mesilla	chloride	294	mg/L	250
				conductance	2009	micromhos	1540
				total filtered residue	1180	mg/L	1000
Chaparral Trailer Park Well #2		Chaparral	Hueco	mercury	0.002	mg/L	0.002
Chaparral west well	32 04 03 106 37 29	Chaparral	Hueco	nitrate	5.62	mg/L	10
Chaparral Greenwood well	32 02 30 106 27 00	Chaparral	Hueco	nitrate	8.64	mg/L	10
Desert Aire well #1				manganese	1.09	mg/L	0.2
Desert Sands MDWCA	32 34 00 106 36 11			fluoride	1.83	mg/L	1.6
				conductance	1598	micromhos	1540
Dona Ana MDWCA well #1		Dona Ana	Mesilla	iron	3.15	mg/L	1
Dona Ana MDWCA well #2		Dona Ana	Mesilla	iron	1.76	mg/L	1
Ft. Seldon subdivision well #1	32 28 30 106 55 00			mercury	0.005	mg/L	0.002
				chloride	295.3	mg/L	250
				conductance	1646	micromhos	1540
Garfield MDWCA well #2	32 43 30 107 13 30	Garfield	Palomas	manganese	0.44	mg/L	0.2

WATER SYSTEM	LOCATION (lat long)	TOWN	BASIN	CONSTITUENT	MEASURED VALUE	UNITS	MCL (or REC. LIMIT)
Hatch well #1	32 40 00 107 09 00	Hatch	Palomas	mercury	0.005	mg/L	0.002
				conductance	1555	micromhos	1540
				total filtered residue	1032	mg/L	1000
Hatch well #2	32 38 00 107 13 00	Hatch	Palomas	mercury	0.0023	mg/L	0.002
Johnson's Trailier Court no. 2, well #1	32 15 00 106 43 00			fluoride	2.46	mg/L	1.6
Johnson's Trailier Court no. 2-A, well #1	32 15 07 106 43 15			manganese	0.27	mg/L	0.2
Las Cruces well #12	32 19 00 106 46 15	Las Cruce	Mesilla	conductance	1658	micromhos	1540
Leasburg MDWCA well #1	32 26 46 106 53 05	Leasburg		manganese	0.25	mg/L	0.2
Las Alturas Estates well #2	32 16 22 106 43 33			fluoride	1.83	mg/L	1.6
Mesa Mobile Manor Well #1				chloride	328.6	mg/L	250
				conductance	2188	micromhos	1540
				total filtered residue	1254	mg/L	1000
NMSU Well #8	32 16 30 106 46 15	Las Cruce	Mesilla	chloride	287.6	mg/L	250
				conductance	1758	micromhos	1540
				total filtered residue	1106	mg/L	1000
Organ MDWCA well #2	32 25 30 106 36 00	Organ	Jornada	nitrate	5.74	mg/L	10
				conductance	1838	micromhos	1540
				hardness	954	mg/L	
				sulfate	802.7	mg/L	600
				total filtered residue	1580	mg/L	1000
Organ MDWCA well #3		Organ	Jornada	arsenic	0.1	mg/L	0.1
				mercury	0.0021	mg/L	0.002
				conductance	1892	micromhos	1540
				hardness	945	mg/L	
				sulfate	815.9	mg/L	600
				total filtered residue	1590	mg/L	1000

WATER SYSTEM	LOCATION (lat long)	TOWN	BASIN	CONSTITUENT	MEASURED VALUE	UNITS	MCL (or REC. LIMIT)
Organ MDWCA well #4		Organ	Jornada	nitrate	16.06	mg/L	10
				conductance	1985	micromhos	1540
				hardness	1061	mg/L	
				sulfate	831.3	mg/L	600
				total filtered residue	1685	mg/L	1000
Organ MDWCA Amax well	32 25 30 106 25 30	Organ	Jornada	fluoride	2.2	mg/L	1.6
				conductance	1690	micromhos	1540
				hardness	815	mg/L	
				iron	3.41	mg/L	1
				sulfate	672.9	mg/L	600
				total filtered residue	1375	mg/L	1000
Radium Springs well #1		Radium S	Mesilla	manganese	0.65	mg/L	0.2
Radium Springs well #2		Radium S	Mesilla	fluoride	5.09	mg/L	1.6
				conductance	6312	micromhos	1540
				total filtered residue	3605	mg/L	1000
Rincon well #1	32 41 00 107 01 45	Rincon	Palomas	fluoride	2.41	mg/L	1.6
River Valley View well #1	32 20 58 106 46 42			cadmium	0.01	mg/L	0.01
				conductance	1558	micromhos	1540
				total filtered residue	1020	mg/L	1000
Silver Spur MHC well #1	32 16 00 106 45 30			mercury	0.002	mg/L	0.002
				manganese	0.5	mg/L	0.2
Sunland Park MDWCA well #3	32 48 00 106 34 00	Sunland P	Mesilla	conductance	1627	micromhos	1540
Vado Middle Well	32 05 14 106 38 20	Vado	Mesilla	chloride	343.8	mg/L	250
				conductance	2303	micromhos	1540
				total filtered residue	1285	mg/L	1000
Villa del Sol well #1	32 14 00 106 45 00			manganese	0.32	mg/L	0.2
Villa del Sol well #2	32 14 00 106 45 00			manganese	0.23	mg/L	0.2
Watson Lane MHP	32 15 00 106 47 00			manganese	0.52	mg/L	0.2
WSMR well MAR-2				iron	2.9	mg/L	1
Winterhaven Subdivision				manganese	1.19	mg/L	0.2

Appen. : A-D
From NMED database

WELLS THAT EXCEED NEW MEXICO MCL STANDARDS

WS_NAME	SOURCE_NAME	Basin	DATE_SAMPLED	CONTAM_NAME	RESULT	MCL	SIGMA	UNITS_CODE	WSF ID
ANTHONY W&SD	DISTRIBUTION SYSTEM	Mesilla	11-Jun-96	LEAD	0.0536	0.05		MG/L	1028
ANTHONY W&SD	WELL # 1 (JAMES SITE)	Mesilla	15-Sep-97	CHLORIDE	438.3	250		MG/L	1030
ANTHONY W&SD	WELL # 1 (JAMES SITE)	Mesilla	15-Sep-97	RESIDUE, TOTAL, FILTERABLE	1300	1000?		MG/L	1030
ANTHONY W&SD	WELL # 4 (VAN BUREN)	Mesilla	15-Sep-97	CHLORIDE	464.2	250		MG/L	1032
ANTHONY W&SD	WELL # 4 (VAN BUREN)	Mesilla	15-Sep-97	RESIDUE, TOTAL, FILTERABLE	1597	1000?		MG/L	1032
ANTHONY W&SD	WELL # 6 (GILLETT)	Mesilla	15-Sep-97	CHLORIDE	679.8	250		MG/L	1033
ANTHONY W&SD	WELL # 6 (GILLETT)	Mesilla	15-Sep-97	RESIDUE, TOTAL, FILTERABLE	1896	1000?		MG/L	1033
ANTHONY W&SD	WELL # 7 (OHARA)	Mesilla	15-Sep-97	CHLORIDE	406.6	250		MG/L	1035
ANTHONY W&SD	WELL # 7 (OHARA)	Mesilla	15-Sep-97	RESIDUE, TOTAL, FILTERABLE	1407	1000?		MG/L	1035
ANTHONY W&SD	WELL 3A (MCKINLEY)	Mesilla	19-Jul-99	CHLORIDE	289.3	250		MG/L	5964
ANTHONY W&SD	WELL 6A (GILLETT)	Mesilla	19-Jul-99	CHLORIDE	429	250		MG/L	5965
ANTHONY W&SD	WELL 6A (GILLETT)	Mesilla	19-Jul-99	RESIDUE, TOTAL, FILTERABLE	1300	1000?		MG/L	5965
BAYLOR SPRINGS CANYON WATER COOPERATIVE	WELL # 1		19-Mar-97	PH [STANDARD UNITS]	1.38	6 TO 9		PH	1281
BRAZITO MDWCA	WELL # 1		12-Mar-97	FLUORIDE	1.81	1.6		MG/L	2276
BRAZITO MDWCA	WELL # 1		11-Feb-00	FLUORIDE	1.81	1.6		MG/L	2276
BRAZITO MDWCA	WELL #2		05-Sep-96	CHLORIDE	290.7	250		MG/L	2279
CHAPARRAL MOBILE HOME PARK	WELL # 2		24-Sep-96	RESIDUE, TOTAL, FILTERABLE	1100	1000?		MG/L	2488
CHAPARRAL WATER SYSTEM	EDNA WELL	Hueco	05-Jun-96	BARIUM	1.03	1		MG/L	2222
CHAPARRAL WATER SYSTEM	EDNA WELL	Hueco	22-Sep-97	CHLORIDE	648.3	250		MG/L	2222
CHAPARRAL WATER SYSTEM	EDNA WELL	Hueco	22-Sep-97	RESIDUE, TOTAL, FILTERABLE	1220	1000?		MG/L	2222
DESERT AIRE MD WATER AND SEWER WORKS ASSOC	WELL # 1		14-Dec-98	FLUORIDE	2.92	1.6		MG/L	5899
DESERT AIRE MD WATER AND SEWER WORKS ASSOC	WELL # 1		23-Feb-00	FLUORIDE	2.26	1.6		MG/L	5899
DESERT SANDS MDWCA	WELL # 1		14-Nov-96	CHLORIDE	275.5	250		MG/L	625
DESERT SANDS MDWCA	WELL # 2		14-Nov-96	CHLORIDE	364.8	250		MG/L	626
DESERT SANDS MDWCA	WELL # 2		14-Nov-96	RESIDUE, TOTAL, FILTERABLE	1151	1000?		MG/L	626
GARFIELD MDWCA	WELL # 1 STANDBY	Palomas	07-Feb-97	FLUORIDE	2.4	1.6		MG/L	2209
GARFIELD MDWCA	WELL # 1 STANDBY		04-May-00	FLUORIDE	1.8	1.6		MG/L	2209
GARFIELD MDWCA	WELL # 3	Palomas	07-Feb-97	FLUORIDE	2.16	1.6		MG/L	2211
GARFIELD MDWCA	WELL # 3		04-May-00	FLUORIDE	2	1.6		MG/L	2211
GARFIELD MDWCA	WELL#S4	Palomas	03-Sep-97	FLUORIDE	4.4	1.6		MG/L	2212
GARFIELD MDWCA	WELL#S5	Palomas	08-Sep-97	FLUORIDE	2.6	1.6		MG/L	2213
GARFIELD MDWCA	WELL#S5	Palomas	27-Oct-97	FLUORIDE	3.1	1.6		MG/L	2213
GARFIELD MDWCA	WELL#S3	Palomas	08-Sep-97	FLUORIDE	2.7	1.6		MG/L	2215
GARFIELD MDWCA	WELL#S3	Palomas	27-Oct-97	FLUORIDE	4.21	1.6		MG/L	2215
GARFIELD MDWCA	ENTRY POINT (STORAGE	Palomas	24-Nov-97	FLUORIDE	3.4	1.6		MG/L	2216
GARFIELD MDWCA	ENTRY POINT (STORAGE	Palomas	22-Jan-98	FLUORIDE	3.2	1.6		MG/L	2216
GARFIELD MDWCA	ENTRY POINT (STORAGE	Palomas	22-Jan-99	FLUORIDE	3.38	1.6		MG/L	2216
GARFIELD MDWCA	ENTRY POINT (STORAGE	Palomas	20-Apr-99	FLUORIDE	3.19	1.6		MG/L	2216
GARFIELD MDWCA	ENTRY POINT (STORAGE	Jornada d	19-Aug-99	FLUORIDE	2.72	1.6		MG/L	2216
GARFIELD MDWCA	ENTRY POINT (STORAGE TANK)		04-May-00	FLUORIDE	2.87	1.6		MG/L	2216
HIGH VALLEY WATER USERS ASSOCIATION	WELL # 1		23-Sep-97	CHLORIDE	356.5	250		MG/L	1169
HIGH VALLEY WATER USERS ASSOCIATION	WELL # 1		23-Sep-97	RESIDUE, TOTAL, FILTERABLE	1363	1000?		MG/L	1169

WS_NAME	SOURCE_NAME	Basin	DATE_SAMPLED	CONTAM_NAME	RESULT	MCL	SIGMA	UNITS_CODE	WSF_ID
HIGH VALLEY WATER USERS ASSOCIATION	WELL # 2		22-Apr-99	ARSENIC	189	0.1		MG/L	1170
HIGH VALLEY WATER USERS ASSOCIATION	WELL # 2		22-Apr-99	CHLORIDE	331.8	250		MG/L	1170
HIGH VALLEY WATER USERS ASSOCIATION	WELL # 2		22-Apr-99	RESIDUE, TOTAL, FILTERABLE	1370	1000?		MG/L	1170
HOLLY GARDEN MHP	WELL # 1		05-Nov-96	RESIDUE, TOTAL, FILTERABLE	1205	1000?		MG/L	3350
JOHNSON'S TRAILER PARK	WELL # 1		09-Nov-99	FLUORIDE	3.09	1.6		MG/L	2519
JOHNSON'S TRAILER PARK	WELL # 2		04-Oct-95	FLUORIDE	3.5	1.6		MG/L	2520
JOHNSON'S TRAILER PARK	WELL # 2		24-Apr-97	FLUORIDE	3.69	1.6		MG/L	2520
JOHNSON'S TRAILER PARK	WELL # 2		09-Nov-99	FLUORIDE	3.01	1.6		MG/L	2520
JOHNSON'S TRAILER PARK	WELL # 3		04-Oct-95	FLUORIDE	3.75	1.6		MG/L	2521
JOHNSON'S TRAILER PARK	WELL # 3		24-Apr-97	FLUORIDE	3.82	1.6		MG/L	2521
JOHNSON'S TRAILER PARK	WELL # 3		09-Nov-99	FLUORIDE	3.2	1.6		MG/L	2521
LA UNION ELEMENTARY SCHOOL	WELL # 1		26-Jan-00	FLUORIDE	1.65	1.6		MG/L	4843
LAS ALTURAS ESTATES	DISTRIBUTION SYSTEM		28-Sep-95	LEAD	0.0741	0.05		MG/L	2217
LAS ALTURAS ESTATES	WELL # 1 (8 INCH)		18-Feb-97	FLUORIDE	2.26	1.6		MG/L	2218
LAS ALTURAS ESTATES	WELL # 1 (8 INCH)		06-Mar-97	FLUORIDE	1.98	1.6		MG/L	2218
LAS ALTURAS ESTATES	WELL # 2 (6 INCH)		18-Feb-97	FLUORIDE	1.72	1.6		MG/L	2219
LAS CRUCES MUNICIPAL WATER SYSTEM	WELL #38	Mesilla	13-Aug-96	CHLORIDE	254	250		MG/L	1091
MESA MOBILE MANOR	WELL # 2		05-Nov-96	CHLORIDE	261	250		MG/L	2526
MESA MOBILE MANOR	WELL #1A		05-Nov-96	CHLORIDE	330	250		MG/L	2527
MESA MOBILE MANOR	WELL #1A		05-Nov-96	RESIDUE, TOTAL, FILTERABLE	1189	1000?		MG/L	2527
MESQUITE MDWCA	WELL # 3	Mesilla	12-Mar-97	FLUORIDE	1.66	1.6		MG/L	2205
MESQUITE MDWCA	WELL # 4	Mesilla	12-Mar-97	FLUORIDE	2.6	1.6		MG/L	2206
MESQUITE MDWCA	WELL 5		16-Feb-00	FLUORIDE	2.1	1.6		MG/L	6133
ORGAN WATER AND SEWER	DISTRIBUTION SYSTEM	Jornada d	09-Jun-95	LEAD	0.0601	0.05		MG/L	1115
RINCON WATER CONSUMERS CO-OP	WELL # 2	Palomas	20-Aug-96	FLUORIDE	4.2	1.6		MG/L	1128
RINCON WATER CONSUMERS CO-OP	ENTRY POINT # 1	Palomas	20-Aug-96	FLUORIDE	3.1	1.6		MG/L	1129
RINCON WATER CONSUMERS CO-OP	ENTRY POINT # 1	Palomas	28-Jul-97	FLUORIDE	2.9	1.6		MG/L	1129
RINCON WATER CONSUMERS CO-OP	ENTRY POINT # 1	Palomas	03-Dec-97	FLUORIDE	3.4	1.6		MG/L	1129
RINCON WATER CONSUMERS CO-OP	ENTRY POINT # 1	Palomas	20-Oct-98	FLUORIDE	3.26	1.6		MG/L	1129
RINCON WATER CONSUMERS CO-OP	ENTRY POINT # 1		04-Nov-99	FLUORIDE	3	1.6		MG/L	1129
RINCON WATER CONSUMERS CO-OP	ENTRY POINT # 1		17-Feb-00	FLUORIDE	3.18	1.6		MG/L	1129
SAN ANDRES ESTATES WATER SYSTEM	DISTRIBUTION SYSTEM		01-Oct-96	LEAD	0.259	0.05		MG/L	2274
SANTA TERESA WATER SYSTEM	WELL # 8	Mesilla	26-Mar-97	FLUORIDE	1.63	1.6		MG/L	2550
SANTA TERESA WATER SYSTEM	WELL #19	Mesilla	02-Sep-98	CHLORIDE	299.2	250		MG/L	2554
SANTA TERESA WATER SYSTEM	WELL #19	Mesilla	02-Sep-98	RESIDUE, TOTAL, FILTERABLE	1119	1000?		MG/L	2554
ST LUKES EPISCOPAL PARISH SCHOOL	WELL # 1		26-Aug-97	CHLORIDE	680	250		MG/L	5486
ST LUKES EPISCOPAL PARISH SCHOOL	WELL # 1		26-Aug-97	RESIDUE, TOTAL, FILTERABLE	2177	1000?		MG/L	5486
SUNLAND PARK WATER SYSTEM	WELL #11-A	Mesilla	25-Sep-97	CHLORIDE	261.7	250		MG/L	1109
WSMR-HTA SITE	HTA-WELL 1 EMRE		19-Mar-96	FLUORIDE	4	1.6		MG/L	5362

Appendix D

Table 3. Summary of Contaminants Detected in Domestic Wells in the Mesilla Valley

Chemical	Total Number of Wells Tested	Number of Wells in Which Chemical Was Detected	Minimum Concentration	Maximum Concentration	Mean Concentration	Median Concentration	MCL	Number Above MCL
Organic Compounds (µg/L)								
2-Chloropropane	91	2	<0.5	2.0	NA	NA	NA	NA
1,2-Dichloropropane	91	2	<0.5	2.6	NA	NA	5	0
1,2-Dichloroethane	91	2	<0.5	0.4	NA	NA	5	0
Toluene	91	1	<0.5	0.6	NA	NA	1,000	0
Dacthal	91	1	<0.5	7.4	NA	NA	NA	NA
Metals (µg/L)								
Lead	86	55	<1	63	5.5	2	15	8
Arsenic	86	71	<1	52	6.0	4	50	2
Nickel	86	8	<10	140	3.6	<10	100	1
Selenium	86	10	<5	250	7.3	<5	50	4
Uranium	86	51	<1	140	12	2	20	16
Manganese	86	80	<1	1,800	351	190	50[a]	58[a]
Aluminum	86	23	<1	950	38	<10	50[a]	11
Major Ions (mg/L)								
Nitrate-N[b]	89	19	<0.1	17	0.73	<0.1	10	3
Chloride	89	89	37	1,214	186	102	250[a]	16[a]
Sulfate	89	89	47	760	263	221	500/250[a]	10/41[a]
TDS	89	89	290	3,622	957	712	500[a]	72[a]
Nutrients								
Fecal coliform	129	4	0	NA	NA	NA	0	4
Coliphage	116	20	0	0.75 ct/mL	NA	NA	NA	NA
Enterococci	28	4	0	0.03 ct/mL	NA	NA	NA	NA

[a] Refers to EPA secondary MCL
[b] As analyzed by the laboratory

NA = Not applicable
TDS = Total dissolved solids
ct/mL = Counts per milliliter

Table 4. Locations of Detected Ground-Water Contamination
Page 1 of 2

Site ID	Location	Contaminant	Concentration (mg/L[a])	MCL (mg/L)
Bacterial				
BHO029	Berino	Enterococci	0.03 ct/mL	NA
BHO058	Chamberino	Enterococci	0.01 ct/mL	NA
BHO085	Mesilla Park	Enterococci	0.03 ct/mL	NA
BHO022	Mesquite	Enterococci	0.02 ct/mL	NA
BHO041	La Union	Fecal coliform	1 ct/mL	0
BHO043	La Union	Fecal coliform	9 ct/mL	0
BHO047	La Union	Fecal coliform	13 ct/mL	0
BHO022	Mesquite	Fecal coliform	Present	0
Nitrogen				
BHO030	Berino	Nitrate	15	10
BHO061	Berino	Nitrate	12.7	10
BHO038	Chamberino	Nitrate	17	10
Metals				
BHO053	La Union	Arsenic	0.050	0.050
BHO116	Santa Teresa	Arsenic	0.052	0.050
BHO031	Berino	Lead	0.021	0.015
BHO021	Mesquite	Lead	0.017	0.015
BHO022	Mesquite	Lead	0.042	0.015
BHO141	Rio Grande Estates	Lead	0.018	0.015
BHO143	Rio Grande Estates	Lead	0.033	0.015
BHO001	Road Runner Lane	Lead	0.027	0.015
BHO135	Road Runner Lane	Lead	0.063	0.015
BHO092	Santa Teresa	Lead	0.056	0.015
BHO029	Berino	Nickel	0.140	0.100
BHO038	Chamberino	Selenium	0.130	0.050
BHO056	Chamberino	Selenium	0.250	0.050
BHO058	Chamberino	Selenium	0.051	0.050
BHO047	La Union	Selenium	0.090	0.050

[a] Concentrations in mg/L unless otherwise noted.

Table 4. Locations of Detected Ground-Water Contamination
Page 2 of 2

Site ID	Location	Contaminant	Concentration (mg/L[a])	MCL (mg/L)
Uranium				
BHO029	Berino	Uranium	0.024	0.020
BHO028	Berino	Uranium	0.057	0.020
BHO030	Berino	Uranium	0.085	0.020
BHO061	Berino	Uranium	0.078	0.020
BHO038	Chamberino	Uranium	0.062	0.020
BHO056	Chamberino	Uranium	0.038	0.020
BHO057	Chamberino	Uranium	0.023	0.020
BHO058	Chamberino	Uranium	0.039	0.020
BHO047	La Union	Uranium	0.078	0.020
BHO048	La Union	Uranium	0.140	0.020
BHO085	Mesilla Park	Uranium	0.059	0.020
BHO105	Radium Springs	Uranium	0.025	0.020
BHO003	Road Runner Lane	Uranium	0.072	0.020
BHO093	Santa Teresa	Uranium	0.038	0.020
BHO035	Vado	Uranium	0.027	0.020
BHO062	Vado	Uranium	0.027	0.020
Organic Compounds				
BHO003	Road Runner Lane	2-Chloropropane	0.002	NA
BHO002	Road Runner Lane	2-Chloropropane	0.001	NA
BHO138	Road Runner Road	1,2-Dichloropropane	0.0019	0.005
BHO137	Road Runner Road	1,2-Dichloropropane	0.0026	0.005
BHO022	Mesquite	1,2-Dichloroethane	0.0003	0.005
BHO026	Mesquite	1,2-Dichloroethane	0.0004	0.005
BHO133	Mesquite	Dacthal	0.0074	NA
BHO133	Mesquite	Toluene	0.0006	1

[a] Concentrations in mg/L unless otherwise noted.

Appendix Vol D

EXECUTIVE SUMMARY

The Border Health Office of the New Mexico Department of Health initiated an investigation into the quality of water in 135 shallow individual domestic wells in the Mesilla Valley. Unlike community or municipal wells, individual domestic wells that serve fewer than 15 homes or 25 people are not monitored on any regular basis for water quality even though these wells are commonly used to supply drinking water. The presence of agriculture and small industries and the increasing density of septic tanks, coupled with the shallow depth to water in this area, create conditions that could pose a threat to human health.

The investigation was conducted in the Spring of 1996 by Daniel B. Stephens & Associates, Inc. (DBS&A). Water samples were collected from 135 domestic wells in the Mesilla Valley for analysis of nitrate, general chemistry, fecal coliform bacteria, coliphage, viruses, metals, pesticides, and volatile and semivolatile organic compounds.

Results of the water quality analyses indicate the water is aesthetically unpleasant in many areas, and naturally occurring elements may pose a health risk. Minor organic contamination was also detected in several wells. Contaminants of concern identified in one or more samples include trace levels of several organic compounds that are below the associated U.S. Environmental Protection Agency (EPA) Maximum Contaminant Level (MCL) but above the Maximum Contaminant Level Goal (MCLG), elevated levels of nitrate, and concentrations of metals above the EPA MCLs. Fecal coliform, enterococci, and coliphage were also detected in ground-water samples but no viruses were detected in any sample. To summarize the results of the ground-water analyses:

- Of the 135 wells tested for nitrate (using a Hach kit with a portion confirmed by a laboratory), 3 showed concentrations above the EPA MCL of 10 mg/L; the highest concentration was 17 mg/L.

- Of the 129 wells sampled for fecal coliform bacteria, 4 tested positive.

- Of the 116 wells sampled for coliphage, 20 tested positive.

- Of the 28 wells sampled for enteroviruses, rotaviruses, and hepatitis A, none were positive.

- Of the 28 wells sampled for enterococci, 4 tested positive.

- Of the 91 wells sampled for volatile and semivolatile organic compounds (including pesticides and herbicides), 7 tested positive for trace levels of organic compounds; however, all concentrations were below the applicable EPA MCL, if any. Compounds detected were 2-chloropropane, 1,2-dichloropropane, 1,2-dichloroethane, toluene, and dacthal. The MCLG for 1,2-dichloropropane or 1,2-dichloroethane of zero is exceeded in 4 wells.

- Of the 86 wells tested for metals, 55 had detectable concentrations of lead, 8 of which were above the EPA MCL of 15 µg/L; the highest concentration was 63 µg/L. Most water samples for metals analysis were collected at the kitchen sink prior to any use in the morning.

- Uranium was detected in 51 out of 86 wells; 16 of the concentrations were above the EPA MCL of 20 µg/L, and the highest observed concentration was 140 µg/L.

- Arsenic was detected in 71 out of 86 wells; 2 of the concentrations were above the EPA MCL of 50 µg/L, and the highest was 52 µg/L.

- Selenium was detected in 10 out of 86 wells; 4 of the concentrations were above the EPA MCL of 50 µg/L, and the highest was 250 µg/L.

- Nickel was detected in 8 out of 86 wells; only one of the observed concentrations (140 µg/L) was above the EPA MCL of 100 µg/L.

- Manganese was detected in 58 out of the 86 wells at concentrations above the EPA secondary MCL of 50 µg/L; the highest observed concentration was 1,800 µg/L.

- Aluminum was detected in 11 out of 86 wells at concentrations above the EPA secondary MCL of 50 µg/L. The highest observed concentration was 950 µg/L.

- Out of the 89 wells tested for general chemistry, chloride, sulfate, and total dissolved solids were elevated above the applicable EPA secondary MCLs in 16, 41, and 72 wells, respectively. The secondary MCLs for chloride, sulfate, and total dissolved solids are 250, 250, and 500 mg/L, respectively. The highest values detected were 1,214 mg/L for chloride, 760 mg/L for sulfate, and 3,622 mg/L for total dissolved solids.

A total of 120 individual domestic wells were screened during the reconnaissance investigation (Plate 2). Approximately 10 percent of the homes had cesspools for disposal of their sewage effluent and the remainder had septic tanks. Of the wells sampled, at least 32 (or 24 percent) had no sanitary seal. Another 35 wells could not be accessed to determine if a sanitary seal was in place. Nearly 13 percent of the households treated their water by filtration or reverse osmosis before drinking. Ten percent drank bottled water.

The lack of significant organic contamination in investigated areas of the Mesilla Valley is due in part to the limited amount of industry in the area. Any organic contaminants that do migrate to the ground water, such as pesticides, may be intercepted by the numerous drains throughout the valley, in which case concentrations present in the aquifer would be reduced. The timing of the sample collection (spring) may also have affected the sampling results. Pesticides may more likely be present in the ground water following the application of the chemicals on the crops during the summer months. Conversely, viruses may be more viable in ground water during the winter months when temperatures of the ground water would be colder.