UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

CHEMICAL QUALITY OF WATER AT 14 SITES NEAR KESTERSON NATIONAL WILDLIFE REFUGE, FRESNO AND MERCED COUNTIES, CALIFORNIA

By John A. Izbicki

Open-File Report 84-582

Prepared in cooperation with the

CALIFORNIA STATE WATER RESOURCES CONTROL BOARD

Sacramento, California
August 1984

UNITED STATES DEPARTMENT OF THE INTERIOR

WILLIAM P. CLARK, Secretary

GEOLOGICAL SURVEY

Dallas L. Peck, Director

For additional information write to:

District Chief
U.S. Geological Survey
2800 Cottage Way, Room W-2235
Sacramento, Calif. 95825

Copies of this report may be purchased from:

Open-File Services Section
Western Distribution Branch
U.S. Geological Survey
Box 25425, Federal Center
Denver, Colo. 80225
Telephone: (303) 236-7476

CONTENTS

ILLUSTRATIONS

TABLES

CONVERSION FACTORS

The inch-pound system of units is used in this report. For readers who prefer International System (SI) Units, the conversion factors for the terms used are listed below:

Multiply	By	To obtain
acres	0.4047	hectares
ft^3/s (cubic feet per second)	0.02832	cubic meters per second
μmho (micromhos per centimeter at 25°C)	1.000	microsiemens per centimeter at 25°C
miles	1.609	kilometers

Abbreviations used:
- μm (micrometers)
- μg/L or UG/L (micrograms per liter)
- mg/L or MG/L (milligrams per liter)
- °C (degrees Celsius)

Trade name disclaimer: The use of brand names in this report is for identification purposes only and does not constitute endorsement by the U.S. Geological Survey.

CHEMICAL QUALITY OF WATER AT 14 SITES NEAR KESTERSON NATIONAL WILDLIFE REFUGE, FRESNO AND MERCED COUNTIES, CALIFORNIA

By John A. Izbicki

ABSTRACT

Data were collected at 14 sites to determine concentrations of major ions, nutrients, and selected trace elements in collector drains tributary to the San Luis Drain; the San Luis Drain near Kesterson Reservoir; Kesterson Reservoir; and selected drains, canals, and sloughs near but not tributary to Kesterson Reservoir. Results from the 14 samples collected during January 24-26, 1984, are summarized in tables, and the sample locations are shown on maps.

INTRODUCTION

The San Luis Drain is a partially completed agricultural project operated by the U.S. Bureau of Reclamation. The drain is planned to prevent waterlogging of agricultural lands on the west side of the San Joaquin Valley. Presently, parts of the drain serve the valley between Five Points and Kesterson Reservoir near Gustine, Calif. (fig. 1). Drain water entering Kesterson Reservoir is lost through evaporation and ground-water percolation. Although the planned service area is 1.2 million acres, only about 8,000 acres of agricultural lands have been tiled for drainage to the San Luis Drain.

The purpose of this report is to provide information on trace-element concentrations in the collector drains tributary to the San Luis Drain; the San Luis Drain near Kesterson Reservoir; Kesterson Reservoir; and drains, canals, and sloughs near but not tributary to Kesterson Reservoir. The data were collected as part of a larger study being done by the U.S. Geological Survey in cooperation with the California State Water Resources Control Board.

METHODS

During January 24-26, 1984, water samples were collected from the San Luis Drain near Kesterson Reservoir; from collector drains tributary to the San Luis Drain; from Kesterson Reservoir; and from several drains, canals, and sloughs near but not tributary to Kesterson Reservoir. Most water samples were pressure filtered in the field through 0.45 μm pore-size membrane filters. Samples for aluminum, iron, manganese, and selenium analyses were pressure filtered through 0.1 μm pore-size membrane filters. Conventional polyethylene bottles were used as sample containers with two exceptions: samples intended for nutrient analyses were stored in opaque polyethylene bottles, and samples intended for selenium analyses were stored in boro-silicate glass bottles with Teflon-lined lids. Samples for nutrient analyses were preserved with mercuric chloride. Samples for cation analyses were preserved by acidifying the sample to a pH less than 2.0 with nitric acid. All bottles were rinsed three times with sample water prior to use.

Portable meters were used for field measurements of pH, alkalinity, and specific conductance using methods given in Skougstad and others (1979, p. 512, 517 and 518, 511). Water-temperature measurements were made with hand-held mercury-filled thermometers that have a full-scale accuracy of 0.5°C and were calibrated with an American Society for Testing and Materials standard laboratory thermometer. All samples were chilled and sent to the U.S. Geological Survey Water Quality Laboratory in Arvada, Colo.

EXPLANATION

SAMPLE SITE

- A San Luis Wasteway at Ingomar Road
- B Santa Fe Canal at Gun Club Road
- C Mud Slough at Gun Club Road
- D San Luis Canal at Gun Club Road
- E Kesterson Reservoir (pond number 11)
- F San Luis Drain second inflow to Kesterson Reservoir
- G San Luis Drain first inflow to Kesterson Reservoir

- H San Luis Drain collector at mile 127.0
- I San Luis Drain collector at mile 129.5
- J San Luis Drain collector at mile 130.6
- K San Luis Drain collector at mile 131.6
- L San Luis Drain collector at mile 132.7
- M San Luis Drain collector at mile 133.8
- N San Luis Drain collector at mile 136.0

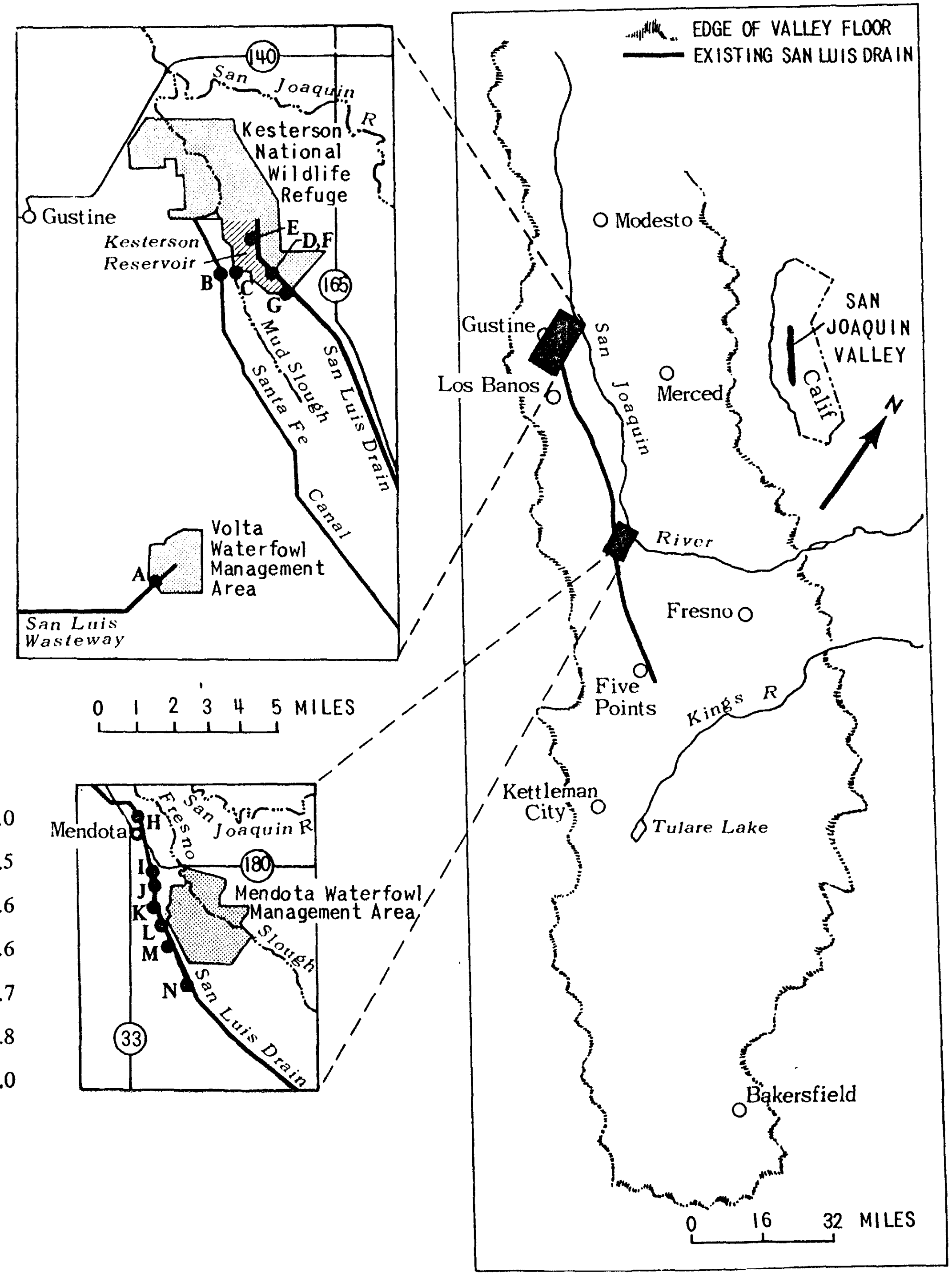

FIGURE 1 — Location of sampling sites

Nutrient samples were analyzed using automated colorimetric methods (Skougstad and others, 1979, p. 389-399, 407, 415-517, 433-439, 445-447, 479-481, and 491-493). Samples for calcium, magnesium, sodium, potassium, berylium, lithium, mercury, and zinc were analyzed by atomic absorption spectrometric methods (Skougstad and others, 1979, p. 107 and 108, 177 and 178, 229 and 230, 255 and 256, 91 and 92, 171 and 172, 197-200, and 273 and 274). Aluminum, cadmium, chromium, copper, lead, manganese, molybdenum, and nickel were analyzed by atomic absorption spectrometric methods with chelation extraction (Skougstad and others, 1979, p. 39 and 40, 97 and 98, 121 and 122, 143 and 144, 158-162, 185 and 186, 209 and 210, and 215-218). Arsenic and selenium were analyzed by automated atomic absorption methods with hydride generation (Skougstad and others, 1979, p. 65-68, and 237-241). Automated colorimetric methods (Skougstad and others, 1979, p. 333-335, 375-377, 497-499, 501-504, and 505 and 506) were used to analyze samples for iron, chloride, silica, sulfate, and vanadium. Samples for boron were analyzed by a non-automated chlorimetric method (Skougstad and others, 1979, p. 315 and 316). Fluoride determinations were done by electrometric ion-selective electrode method (Skougstad and others, 1979, p. 525-528).

Differences between concentrations of dissolved constituents in samples from collector drains tributary to the San Luis Drain and from drains, canals, and sloughs near but not tributary to Kesterson Reservoir were evaluated using the median test (Neter and Wasserman, 1974). A decision level of $\alpha = 0.05$ was used to establish if sample medians were equal or not equal.

DATA LIMITATIONS

The samples from San Luis Drain were collected during winter, following several months of above-normal precipitation. Although collector drains were discharging shallow ground water, irrigation water was not being applied to agricultural fields. Drain-water quality may be different during summer months. Also, because collector drains do not receive continuous inputs from tile drain systems and associated sumps, collector drain water may differ in chemical quality over short periods of time. Samples from Kesterson Reservoir and nearby sloughs and canals also were collected during the winter; water quality is likely to be different during the summer months.

EXPLANATION OF TABLES

Table 1 is a summary of water-quality data from collector drains tributary to the San Luis Drain and drains, canals, and sloughs near but not tributary to Kesterson Reservoir. Statistically significant differences are indicated by a footnote to the left of the greater median concentration.

Table 2 is a listing of water-quality data from collector drains tributary to the San Luis Drain; the San Luis Drain at the first and second inflows to Kesterson Reservoir; Kesterson Reservoir pond 11; and drains, canals, and sloughs near but not tributary to Kesterson Reservoir.

REFERENCES CITED

Neter, John, and Wasserman, William, 1974, Applied linear statistical models: Homewood, Illinois, Richard S. Irwin, Inc., 842 p.

Skougstad, M. W., Fishman, J. J., Friedman, L. C., Erdman, D. E., and Duncan, S. S., ed., 1979, Methods for analyses of inorganic substances in water and fluvial sediments: U.S. Geological Survey Open-File Report 78-679, 626 p.

TABLE 1. - Summary of water-quality data from collector drains tributary to the San Luis Drain and drains, canals, and sloughs near but not tributary to Kesterson Reservoir

[<, less than; --, no data]

Properties and constituents	Collector drains tributary to the San Luis Drain (sites H-N, fig. 1) January 24, 1984				Drains, canals, and sloughs near but not tributary to Kesterson Reservoir (sites A-D, fig. 1) January 25, 1984			
	Number of observations	Minimum	Median	Maximum	Number of observations	Minimum	Median	Maximum
Instantaneous flow----------ft^3/s---	7	0.1	1.0	1.9	--	--	--	--
Specific conductance--- ---------------µmho/cm at 25°C---	7	9,000	[1]10,700	13,900	4	1,890	3,100	8,130
pH----------------------------------	7	7.3	7.6	8.0	4	7.6	8.2	8.4
Temperature-------------------°C---	7	17.0	[1]17.0	17.5	4	9.0	11.2	13.5
Hardness--------------------mg/L---	7	2,300	[1]2,400	2,800	4	350	580	1,400
Calcium---------------------mg/L---	7	440	[1]510	590	4	66	120	290
Magnesium-------------------mg/L---	7	240	[1]280	360	4	46	70	170
Sodium----------------------mg/L---	7	1,300	[1]1,800	2,800	4	280	480	910
Percent sodium----------------------	7	55	61	73	4	56	60	70
Sodium adsorption ratio-------------	7	12	[1]16	26	4	6.6	8.8	11
Potassium-------------------mg/L---	7	3.9	4.9	5.2	4	3.1	5.0	5.5
Alkalinity------------------mg/L---	7	187	216	242	4	251	[1]318	362
Sulfate---------------------mg/L---	7	2,900	[1]4,300	6,200	4	220	760	1,800
Chloride--------------------mg/L---	7	1,100	[1]1,400	2,000	4	270	440	850
Fluoride--------------------mg/L---	7	0.1	0.1	0.2	4	0.3	[1]0.4	0.4
Silica----------------------mg/L---	7	40	[1]44	45	4	8.1	11.8	24
Dissolved solids (residue)---mg/L---	7	7,350	[1]9,290	12,500	4	1,110	2,070	4,550
Nitrite nitrogen--------mg/L as N---	7	<0.01	<0.01	<0.01	4	<0.01	[1]0.02	0.08
NO_2 + NO_3 nitrogen------mg/L as N---	7	40	[1]55	68	4	<0.10	1.4	6.2
Ammonia nitrogen--------mg/L as N---	7	0.06	0.07	0.08	4	0.06	0.11	0.85
Ammonia + organic nitrogen--- ---------------------mg/L as N---	7	0.5	0.7	1.1	4	0.4	0.95	2.3
Orthophosphorus---------mg/L as P---	7	0.03	0.04	0.06	4	0.05	0.08	0.41
Aluminum--------------------µg/L---	7	10	10	30	4	<10	<10	<10
Arsenic---------------------µg/L---	7	<1	<1	2	4	3	[1]3	5
Beryllium-------------------µg/L---	7	<10	<10	<10	4	<10	<10	<10
Boron-----------------------µg/L---	7	7,900	[1]14,000	21,000	4	1,800	3,500	6,400
Cadmium---------------------µg/L---	7	<1	<1	2	4	<1	<1	<1
Chromium--------------------µg/L---	7	20	[1]30	40	4	<10	<10	<10
Copper----------------------µg/L---	7	2	3	6	4	<1	<1	2
Iron------------------------µg/L---	7	33	[1]180	680	4	8	20	60
Lead------------------------µg/L---	7	1	[1]2	16	4	<1	<1	8
Lithium---------------------µg/L---	7	280	[1]300	360	4	37	60	70
Manganese-------------------µg/L---	7	7	10	49	4	81	[1]110	2,800
Mercury---------------------µg/L---	7	<0.1	<0.1	0.2	4	<0.1	<0.1	0.1
Molybdenum------------------µg/L---	7	26	[1]63	190	4	6	8	21
Nickel----------------------µg/L---	7	3	6	11	4	<1	4	8
Selenium--------------------µg/L---	7	145	[1]320	870	4	<1	2	23
Vanadium--------------------µg/L---	7	33	[1]40	65	4	9	10	15
Zinc------------------------µg/L---	7	20	[1]20	20	4	10	10	20

[1]Statistically significant difference between median values using the median test with an $\alpha = 0.05$ decision level.

TABLE 2.- Water-quality data from collector drains tributary to the San Luis Drain; the San Luis Drain at the first and second inflows to Kesterson Reservoir; Kesterson Reservoir pond #11; and drains, canals and sloughs near, but not tributary to Kesterson Reservoir

[<, less than; --, no data]

SITE (FIG. 1)	LOCAL IDENT-I-FIER	DATE OF SAMPLE	TIME	FLOW RATE, INSTAN-TANEOUS (FT^3/S)	SPE-CIFIC CON-DUCT-ANCE (MICROMHOS)	PH (STAND-ARD UNITS)	TEMPER-ATURE (°C)	HARD-NESS (MG/L AS CACO3)	HARD-NESS, NONCAR-BONATE (MG/L CACO3)	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)
N	SLD COLLECTOR @ MI 136.0	84-01-24	1745	.1	13900	7.9	17.0	2300	2030	440	280
M	SLD COLLECTOR @ MI 133.8	84-01-24	1630	.4	10700	7.8	17.0	2400	2220	500	280
L	SLD COLLECTOR @ MI 132.7	84-01-24	1530	1.9	11100	7.6	17.5	2500	2270	490	310
K	SLD COLLECTOR @ MI 131.6	84-01-24	1415	.9	9000	7.6	17.0	2300	2080	520	240
J	SLD COLLECTOR @ MI 130.6	84-01-24	1300	1.0	11700	7.6	17.0	2800	2550	510	360
I	SLD COLLECTOR @ MI 129.5	84-01-24	1000	1.5	9200	7.3	17.0	2400	2140	530	250
H	SLD COLLECTOR @ MI 127.0	84-01-24	0800	1.0	9680	8.0	17.0	2600	2390	590	280
G	SLD 1ST INFLOW TO KESTER	84-01-25	0945	--	9590	8.2	10.0	2300	2030	490	250
F	SLD 2ND INFLOW TO KESTER	84-01-25	1130	--	9450	8.3	10.5	2300	2050	500	250
E	KESTERSON RESERVOIR POND	84-01-25	1500	--	10800	8.3	12.0	2200	2030	430	280
D	SAN LUIS CANAL @ GUN CLU	84-01-25	1630	--	8130	7.6	13.5	1400	1110	290	170
C	MUD SLOUGH @ GUN CLUB RD	84-01-26	1030	--	3340	8.4	10.0	520	201	90	72
B	SANTE FE CANAL @ GUN CLU	84-01-26	0900	--	2870	8.2	9.0	630	404	150	68
A	SAN LUIS WASTEWAY @ INGO	84-01-26	1300	--	1890	8.1	12.5	350	0	66	46

SITE (FIG. 1)	LOCAL IDENT-I-FIER	DATE OF SAMPLE	SODIUM, DIS-SOLVED (MG/L AS NA)	PERCENT SODIUM	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY FIELD (MG/L AS CACO3)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)	SILICA, DIS-SOLVED (MG/L AS SIO2)
N	SLD COLLECTOR @ MI 136.0	84-01-24	2800	73	26	4.2	220	6200	1400	.10	45
M	SLD COLLECTOR @ MI 133.8	84-01-24	1900	63	17	4.1	187	4600	1300	.10	45
L	SLD COLLECTOR @ MI 132.7	84-01-24	1800	61	16	3.9	228	4300	1400	.10	45
K	SLD COLLECTOR @ MI 131.6	84-01-24	1300	55	12	4.9	208	3200	1100	.20	44
J	SLD COLLECTOR @ MI 130.6	84-01-24	2400	65	20	4.9	210	4900	2000	.10	40
I	SLD COLLECTOR @ MI 129.5	84-01-24	1400	56	13	5.2	216	3100	1400	.20	42
H	SLD COLLECTOR @ MI 127.0	84-01-24	1500	55	13	5.1	242	2900	1800	.20	41
G	SLD 1ST INFLOW TO KESTER	84-01-25	1700	62	16	5.4	224	3700	1300	.20	22
F	SLD 2ND INFLOW TO KESTER	84-01-25	1600	60	15	5.2	230	3700	1300	.20	22
E	KESTERSON RESERVOIR POND	84-01-25	2000	66	19	7.4	197	4100	1500	.20	<1.0
D	SAN LUIS CANAL @ GUN CLU	84-01-25	910	58	11	5.5	316	1800	850	.40	9.7
C	MUD SLOUGH @ GUN CLUB RD	84-01-26	570	70	11	4.8	321	790	510	.40	8.1
B	SANTE FE CANAL @ GUN CLU	84-01-26	380	56	6.7	5.1	251	730	370	.30	14

TABLE 2.- Water-quality data from collector drains tributary to the San Luis Drain; the San Luis Drain at the first and second inflows to Kesterson Reservoir; Kesterson Reservoir pond #11; and drains, canals and sloughs near but not tributary to Kesterson Reservoir. --Continued

SITE (FIG. 1)	LOCAL IDENT- I- FIER	DATE OF SAMPLE	SOLIDS, RESIDUE AT 180 DEG. C DIS- SOLVED (MG/L)	SOLIDS, SUM OF CONSTI- TUENTS, DIS- SOLVED (MG/L)	NITRO- GEN, NITRATE DIS- SOLVED (MG/L AS N)	NITRO- GEN, NITRITE DIS- SOLVED (MG/L AS N)	NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L AS N)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS N)	NITRO- GEN, ORGANIC DIS- SOLVED (MG/L AS N)	NITRO- GEN,AM- MONIA + ORGANIC DIS. (MG/L AS N)	PHOS- PHORUS, ORTHO, DIS- SOLVED (MG/L AS P)
N	SLD COLLECTOR @ MI 136.0	84-01-24	12500	11300	--	<.010	53	.060	.74	.80	.040
M	SLD COLLECTOR @ MI 133.8	84-01-24	9410	8760	--	<.010	68	.070	.63	.70	.060
L	SLD COLLECTOR @ MI 132.7	84-01-24	9290	8500	--	<.010	55	.060	1.0	1.1	.060
K	SLD COLLECTOR @ MI 131.6	84-01-24	7350	6540	--	<.010	68	.080	.42	.50	.030
J	SLD COLLECTOR @ MI 130.6	84-01-24	12000	10400	--	<.010	44	.060	.54	.60	.040
I	SLD COLLECTOR @ MI 129.5	84-01-24	7370	6870	--	<.010	40	.070	.93	1.0	.040
H	SLD COLLECTOR @ MI 127.0	84-01-24	7910	7270	--	<.010	56	.070	.53	.60	.030
G	SLD 1ST INFLOW TO KESTER	84-01-25	8270	7610	41.8	.220	42	.230	1.5	1.7	<.010
F	SLD 2ND INFLOW TO KESTER	84-01-25	8180	7710	49.8	.230	41	.170	.73	.90	.010
E	KESTERSON RESERVOIR POND	84-01-25	9020	--	7.79	.110	7.9	.080	1.3	1.4	.010
D	SAN LUIS CANAL @ GUN CLU	84-01-25	4550	4230	--	<.010	<.10	.110	1.1	1.2	.050
C	MUD SLOUGH @ GUN CLUB RD	84-01-26	2220	2250	.72	.020	.74	.110	.59	.70	.090
B	SANTE FE CANAL @ GUN CLU	84-01-26	1920	1870	6.12	.080	6.2	.850	1.5	2.3	.410
A	SAN LUIS WASTEWAY @ INGO	84-01-26	1110	1130	2.08	.020	2.1	.060	.34	.40	.070

SITE (FIG. 1)	LOCAL IDENT- I- FIER	DATE OF SAMPLE	ALUM- INUM, DIS- SOLVED (UG/L AS AL)	ARSENIC DIS- SOLVED (UG/L AS AS)	BERYL- LIUM, DIS- SOLVED (UG/L AS BE)	BORON, DIS- SOLVED (UG/L AS B)	CADMIUM DIS- SOLVED (UG/L AS CD)	CHRO- MIUM, DIS- SOLVED (UG/L AS CR)	COPPER, DIS- SOLVED (UG/L AS CU)	IRON, DIS- SOLVED (UG/L AS FE)	LEAD, DIS- SOLVED (UG/L AS PB)
N	SLD COLLECTOR @ MI 136.0	84-01-24	10	1	<10	21000	<1	40	3	240	<1
M	SLD COLLECTOR @ MI 133.8	84-01-24	20	2	<10	14000	<1	30	3	180	4
L	SLD COLLECTOR @ MI 132.7	84-01-24	10	<1	<10	14000	<1	30	3	160	11
K	SLD COLLECTOR @ MI 131.6	84-01-24	10	<1	<10	8900	<1	30	2	33	2
J	SLD COLLECTOR @ MI 130.6	84-01-24	<10	<1	<10	19000	<1	30	5	240	2
I	SLD COLLECTOR @ MI 129.5	84-01-24	30	<1	<10	7900	<1	20	5	680	<1
H	SLD COLLECTOR @ MI 127.0	84-01-24	20	<1	<10	9500	2	30	6	42	16
G	SLD 1ST INFLOW TO KESTER	84-01-25	30	<1	<10	11000	<1	20	3	51	<1
F	SLD 2ND INFLOW TO KESTER	84-01-25	40	<1	<10	12000	<1	20	2	60	<1
E	KESTERSON RESERVOIR POND	84-01-25	20	<1	<10	14000	<1	10	<1	79	2
D	SAN LUIS CANAL @ GUN CLU	84-01-25	<10	3	<10	6400	<1	<10	2	60	<1
C	MUD SLOUGH @ GUN CLUB RD	84-01-26	<10	3	<10	3500	<1	<10	1	10	8
B	SANTE FE CANAL @ GUN CLU	84-01-26	<10	5	<10	3500	<1	<10	<1	40	<1
A	SAN LUIS WASTEWAY @ INGO	84-01-26	<10	3	<10	1800	<1	<10	<1	8	1

TABLE 2.- Water-quality data from collector drains tributary to the San Luis Drain; the San Luis Drain at the first and second inflows to Kesterson Reservoir; Kesterson Reservoir pond #11; and drains, canals and sloughs near, but not tributary to Kesterson Reservoir. --Continued

SITE (FIG. 1)	LOCAL IDENT-I-FIER	DATE OF SAMPLE	LITHIUM DIS-SOLVED (UG/L AS LI)	MANGA-NESE, DIS-SOLVED (UG/L AS MN)	MERCURY DIS-SOLVED (UG/L AS HG)	MOLYB-DENUM, DIS-SOLVED (UG/L AS MO)	NICKEL, DIS-SOLVED (UG/L AS NI)	SELE-NIUM, DIS-SOLVED (UG/L AS SE)	VANA-DIUM, DIS-SOLVED (UG/L AS V)	ZINC, DIS-SOLVED (UG/L AS ZN)
N	SLD COLLECTOR @ MI 136.0	84-01-24	280	41	.2	190	3	870	43	20
M	SLD COLLECTOR @ MI 133.8	84-01-24	280	10	<.1	64	5	520	33	20
L	SLD COLLECTOR @ MI 132.7	84-01-24	300	10	<.1	63	7	420	39	20
K	SLD COLLECTOR @ MI 131.6	84-01-24	290	7	<.1	26	6	300	40	20
J	SLD COLLECTOR @ MI 130.6	84-01-24	360	31	.1	130	6	320	65	20
I	SLD COLLECTOR @ MI 129.5	84-01-24	300	49	<.1	26	11	145	33	20
H	SLD COLLECTOR @ MI 127.0	84-01-24	330	7	<.1	30	9	225	46	20
G	SLD 1ST INFLOW TO KESTER	84-01-25	290	430	<.1	80	5	260	32	20
F	SLD 2ND INFLOW TO KESTER	84-01-25	270	420	<.1	76	9	275	28	20
E	KESTERSON RESERVOIR POND	84-01-25	270	14	<.1	98	7	100	27	30
D	SAN LUIS CANAL @ GUN CLU	84-01-25	70	2800	.1	6	8	2	15	20
C	MUD SLOUGH @ GUN CLUB RD	84-01-26	50	95	<.1	21	4	3	11	10
B	SANTE FE CANAL @ GUN CLU	84-01-26	70	120	.1	11	5	23	9.0	10
A	SAN LUIS WASTEWAY @ INGO	84-01-26	37	81	<.1	6	<1	<1	9.1	11