

# **POLLUTION SOURCES of the MAJOR SALT LAKE VALLEY STREAMS**

**Salt Lake County 208  
Water Quality Project  
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**Terry Way  
Cheryl Contant  
Dept. Civil Engineering  
University of Utah**



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## POLLUTION SOURCES OF THE MAJOR SALT LAKE VALLEY STREAMS

### INTRODUCTION

Salt Lake County has three major tributaries\* to the Jordan River; Mill Creek, Big Cottonwood Creek, and Little Cottonwood Creek. These streams flow from the Wasatch Mountains through the valley to the Jordan River and become extensively polluted, primarily from non-point pollution sources. The Salt Lake Valley, due to its agricultural history, contains an extensive network of irrigation canals. Much of the water which flows through the valley in irrigation canals is diverted from the Jordan River or Utah Lake. Both of these sources are initially polluted but further pollution is obtained from various point and non-point sources throughout the valley.

In order to properly evaluate water quality in Salt Lake County, an inventory of point and non-point pollution sources has been completed and is contained in this document.

### OBJECTIVES

The objectives of this survey were:

- 1) to prepare a general description of the valley streams and the immediate surrounding areas, and
- 2) to identify point and non-point pollution sources of the valley creeks and the Jordan River.

A description of the area surrounding the streams will aid in identifying different pollution types, e.g., fecal coliform bacteria, oil and grease, etc., that are entering the creeks.

### METHODOLOGY

In an effort to identify point and non-point pollution sources of the valley streams, an intensive ground search was performed on Mill

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\* Parleys, Emigration and Red Butte Creeks have been omitted since they flow into the 13th South storm drain relatively near their entry into the valley.

Creek, Big Cottonwood Creek and Little Cottonwood Creek over a four-day period. The three streams were traced from their confluence with the Jordan River to the canyon mouth in an attempt to effectively describe possible sources of pollution.

Problems were encountered in following the creeks in residential areas where the creek flows through private yards. This problem was recognized in the design phase of the study and the level of detail was therefore adjusted to accommodate the problem.

A search of the Jordan River for pollution sources has been completed for the 208 Project by Nielsen, Maxwell and Wangsgard.<sup>(1)</sup> The results of this report show the point and non-point pollution sources on the Jordan River (see Table III).

In addition, irrigation return flows to the Jordan River have been compiled from information from the State Engineer's Office.<sup>(2)</sup> Irrigation water for the valley is obtained from the Jordan River, Utah Lake itself, or from the valley streams. This irrigation water is returned to the valley streams, the Jordan River, the Great Salt Lake or is used in industrial processes by Kennecott Copper Corporation. The major streams and canals that dissect Salt Lake County are shown in Figure 1.

#### RESULTS AND CONCLUSIONS

The locations of storm drains, gutters, parking lot drainages, industrial areas, canal return flows, and other miscellaneous non-point pollution sources of valley streams are listed in Table I. The location of springs that become tributaries of the creeks are given for the point of their confluence with the creek. These are interpreted to be point sources of pollution even though the quality of these tributaries in most cases may be higher than that of the creek.

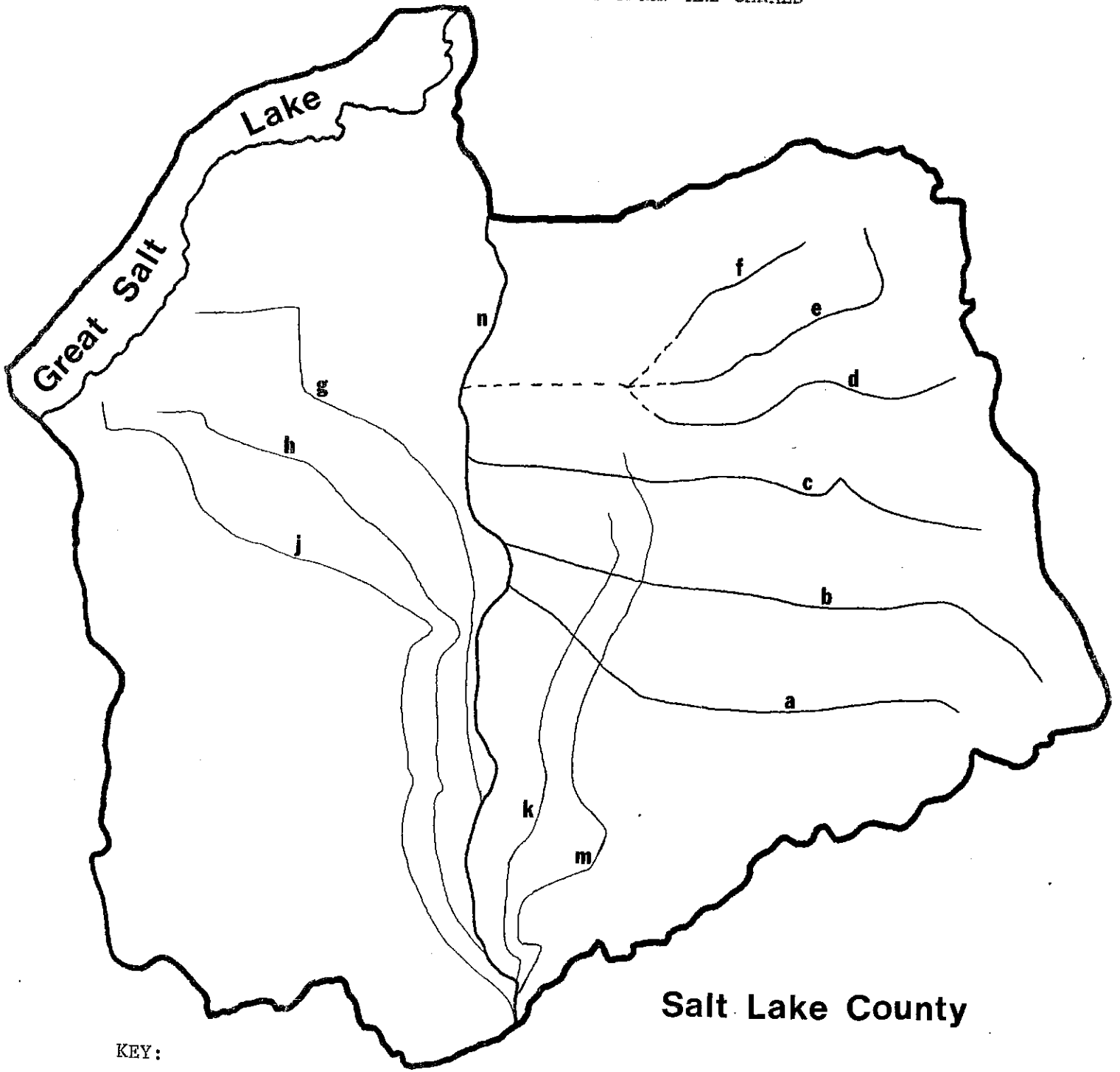
Table II lists the general characteristics of the creeks and the surrounding area (up to 75 meters from the creek bed on either side). Point and non-point pollution sources that drain directly into the Jordan River are shown in Table III. These results were prepared for the 208 Project by a consulting firm.<sup>(1)</sup> Agricultural return flows and the receiving waters are shown in Table IV. These were prepared by the 208 staff from information supplied by the State Engineer's Office.<sup>(2)</sup>

Canal return flows were found to be the major contributors to the decreasing quality of the valley streams adding primarily suspended and dissolved solids and chlorides. This will be quantified by a sampling program which is now in progress. The return flows were found to be present in the mid-valley regions of the streams in predominantly residential and agricultural areas. Near the confluence with the Jordan River, all valley streams were extensively channeled and surrounded by warehouse and industrial areas and open fields (non-cultivated) adding to non-point pollution. Near the mouth of the canyons, fields, unchannelized creek beds and pastureland prevailed. Irrigation drainage from these areas also contributes to non-point pollution of the valley streams.

#### REFERENCES

- (1) Nielsen, Maxwell & Wangsgard, (SLC); "Future Urban Storm Runoff Estimates," Report to the Salt Lake County 208 Project, July 1976.
- (2) Utah Lake and Jordan River Adjudication, Office of State Engineer, State of Utah, 1967.

FIGURE 1--MAJOR COUNTY STREAMS AND CANALS



**Salt Lake County**

**KEY:**

- |                            |                               |
|----------------------------|-------------------------------|
| a--Little Cottonwood Creek | g--North Jordan Canal         |
| b--Big Cottonwood Creek    | h--South Jordan Canal         |
| c--Mill Creek              | j--Utah and Salt Lake Canal   |
| d--Parley's Creek          | k--Jordan and Salt Lake Canal |
| e--Emigration Creek        | m--East Jordan Canal          |
| f--Red Butte Creek         | n--Jordan River               |

TABLE I  
POLLUTION SOURCES ON VALLEY STREAMS

A. MILL CREEK

Location--(Approximate)	Description	Point or Non-Point
900 W. - 2900 S.	1 - 18" storm drain	np
700 W. to 550 W - 2980 S	1 - 15" storm drain	np
700 W.-550 W. - 2980 S.	Denver and Rio Grande Railroad Yards	np
450 W - 2980 S.	storm water runoff from freeway	np
350 W. - 2980 S.	parking lot drainage	np
300 W. - 2980 S.	gutter drainage	np
	2 - 15" storm drains	np
150 W. - 2980 S.	parking lot drainage	np
100 W. - 2980 S.	gutter drainage	np
	2 - 15" storm drains	np
50 W. - 2980 S.	parking lot drainage	np
0 E. - 2980 S.	3 - 12" storm drains	np
	1 - 15" storm drain	np
	1 - 8" storm drain	np
200 E. - 3000 S.	1 - 15" storm drain	np
	1 - 12" storm drain	np
	1 - 8" storm drain	np
300 E - 3000 S.	1 - 15" storm drain	np
500 E. - 3140 S.	1 - 8" storm drain	np
510 E. - 3120 S.	1 - 12" storm drain	np

TABLE I (cont'd)  
 POLLUTION SOURCES ON VALLEY STREAMS

A. MILL CREEK (cont'd)

Location--(Approximate)	Description	Point or Non-Point
550 E. - 3150 S.	spring fed return	p
600 E. - 3200 S.	1 - 8" storm drain	np
650 E. - 330 S.	1 storm drain drop	np
700 E. - 3320 S.	3 storm drain drops	np
850 E. - 3450 S.	fish hatchery (defunct)	np
	spring fed return	p
900 E. - 3500 S.	1 - 8" storm drain	np
950 E. - 3500 S.	gutter drainage	np
1020 E. - 3500 S.	2 storm drain drops	np
1050 E. - 3500 S.	2 storm drain drops	np
1100 E. - 3510 S.	1 - 12" storm drain	np
	irrigation diversion	
1200 E. - 3510 S.	2 storm drops	np
1300 E. - 3560 S.	gutter drainage	np
	irrigation return flow	np
	irrigation diversion	
1350 E. - 3560 S.	2 storm drain drops	np
	dairy-milk processing plant	p
1450 E. - 3600 S.	irrigation return flow	np
Highland Drive-3600 S.	2 storm drain drops	np



TABLE I (cont'd)  
 POLLUTION SOURCES ON VALLEY STREAMS

A. MILL CREEK (cont'd)

Location--(Approximate)	Description	Point or Non-Point
1640 E. - 3560 S.	1 - 8" storm drain gutter drainage irrigation return flow	np np np
1750 E. - 3540 S.	2 storm drain drops	np
1860 E. - 3500 S.	2 storm drain drops	np
1948 E. - 3510 S.	1 storm drain drop	np
	1 - 6" storm drain	np
2000 E - 3505 S.	*irrigation canal inflow (upper canal)	np
2300 E. - 3500 S.	2 storm drain drops	np
2400 E. - 3500 S.	irrigation diversion	
2750 E. - 3500 S.	1 storm drain drop	np
3400 E. - 3500 S.	garden and pasture drainage	np
3500 E. - 3580 S.	1-24" storm drain from freeway	np
3550 E - 3600 S.	orchard drainage	np

TABLE I (cont'd)  
 POLLUTION SOURCES ON VALLEY STREAMS

B. BIG COTTONWOOD

Location--(Approximate)	Description	Point or Non-Point
750 W. - 4200 S.	confluence with Jordan	
500 W. - 4200 S.	2 storm drain drops	np
300 W. - 4200 S.	campground	np
	feedlot	np
200 W. - 4200 S.	lumber yard	np
0 E.- 100W. - 4200 S.	railroad yard	np
	construction yard	np
100 E. - 4300 S.	laundry	
	2 - 36" storm drains	np
	1 storm drain drop	np
200 E. - 4300 S.	trailer court	np
	7 gutter drains	np
	1 outlet from a fish pond	np
	1 - 6" storm drain	np
350 E. - 4500 S.	2 storm drain drops	np
365 E. - 4540 S.	1 - 36" storm drain	np
365 E. - 4620 S.	3 gutter drainages	np
400 E. - 4640 S.	creek enters	P
460 E. - 4690 S.	creek enters	P
900 E. - 4800 S.	*irrigation canal inflow (Jordan & Salt Lake Extension)	np

\* Major pollution source

TABLE I (cont'd)  
POLLUTION SOURCES ON VALLEY STREAMS

B. BIG COTTONWOOD (cont'd)

Location--(Approximate)	Description	Point or Non-Point
1100 E. 4800 S.	Pond outlet from Hidden Lake Condominiums	np
1175 E. - 4790 S.	pasture	np
1300 E.-1350 E. -4775 S.	pasture	np
1400 E. - 4800 S.	2 storm drain drops	np
1450 E. - 4800 S.	3 pastures	np
1600 E. - 4800 S.	park	np
1800 E. - 4850 S.	1 - 36" storm drain	np
	3 - 8" storm drains	np
Highland Drive-4800 to 5500 S. (mall)	parking lot drainage parking lot	np
1900 E. - 5000 S.	4 - 8" storm drains	np
2300 E. - 5225 S.	irrigation return flow	np
2500 E - 5500 S.	irrigation diversion	
2725 E. - 5550 S.	irrigation return flow	np
2700 E. - 5575 S.	corral	np
2675 E. - 5625 S.	corral	np
2700 E. - 5800 S.	irrigation diversion	
2700 E. - 5850 S.	irrigation return flow	np
2700 E. - 5900 S.	irrigation diversion	
2700 E. - 6175 S.	irrigation diversion	

TABLE I (cont'd)  
 POLLUTION SOURCES ON VALLEY STREAMS

B. BIG COTTONWOOD (cont'd)

Location--(Approximate)	Description	Point or Non-Point
2700 E. - 6200 S.	1 - 18" storm drain spring	np p
3000 E. - 6550 S.	1 - 30" storm drain 1 - 8" storm drain	np np
Canyon Mouth	gravel pit	np

TABLE I (cont'd)  
 POLLUTION SOURCES ON VALLEY STREAMS

C. LITTLE COTTONWOOD

Location--(Approximate)	Description	Point or Non-Point
550 W. - 4825 S.	confluence with the Jordan River	
200 W. to 50 W. - 4800 S. to 4900 S.	asphalt plant	np
	gravel fill dirt	np
100 E. to 400 E. - 5150 S. to 5250 S.	Murray City Park	np
	fairgrounds	np
200 E. - 5100 S.	parking lot drainage	np
300 E. - 5200 S.	4 gutter drainages	np
450 E. - 5200 S.	2 storm drain drops	np
550 E. - 5300 S.	gutter drainage	np
700 E. - 5800 S.	feed lot	np
900 E. - 5900 S.	pasture	np
950 E. - 5900 S.	gutter drainage	np
	1 - 4" storm drain	np
900 E. to 1100 E. - 6250 S. to 6550 S.	pasture	np
1100 E. - 6550 S.	alfalfa field	np
	nursery	np
1100 E. - 6575 S.	*irrigation canal inflow (Jordan and Salt Lake)	np
1150 E. - 6700 S. to 6890 S.	pasture	np
1200 E. - 6900 S.	gutter drainage	np

\* Major pollution source

TABLE I (cont'd)  
 POLLUTION SOURCES ON VALLEY STREAMS

C. LITTLE COTTONWOOD (cont'd)

Location--(Approximate)	Description	Point or Non-Point
1250 E. - 7190 S.	*irrigation canal inflow (East Jordan Canal extension)	np
1600 E. - 7500 S.	pasture	np
1890 E. - 7870 S.	trailer court	np
2490 E. - 8100 S.	irrigation canal inflow (Willow Creek Country Club canal)	np
2500 E. 8100 S.	4 - 12" storm drains	np
	1 - 24" storm drain	np
Canyon Mouth-Glacio-Park	springs	p

\* Major pollution source

TABLE II  
GENERAL DESCRIPTION OF VALLEY STREAMS

A. MILL CREEK

Mile Point		Address (Approximate)		Creek and Surrounding Area Description
From	To	From	To	
0*	0.47	2800 S. 1100 W.	2900 S. 800 W.	creek is channeled, fields, warehouses, Salt Lake City Suburban Sanitary District #1
0.47	0.79	2900 S. 800 W.	2985 S. 550 W.	creek is channeled, Denver & Rio Grande railroad yards, warehouses
0.79	0.86	2985 S. 550 W.	2985 S. 400 W.	channeled, fields, passes under freeway
0.86	1.33	2985 S. 400 W.	3000 S. 100 W.	channeled, few residences, parking lots
1.33	1.96	2985 S. 100 W.	3000 S. 200 E.	channeled, school, trailer court, residential and commercial, warehouses, parking lots
1.96	4.12	3000 S. 200 E.	3575 S. 1300 E.	little channelization, mostly residential, some commercial, some fields, 2 springs, defunct fish hatchery, 1 irrigation diversion
4.12	5.12	3575 S.	3500 S.	residential, milk processing operation at 13th E. and Brookshire, 3 irrigation returns, 2 irrigation diversions
5.12	5.57	3500 S. 1950 E.	3500 S. 2300 E.	residential, some commercial, canal return to creek at 2200 E.
5.57	6.10	3500 S. 2300 E.	3500 S. 2720 E.	residential, 1 irrigation diversion
6.10	7.07	3500 S. 2720 E.	3600 S. 3450 E.	some residential, fields, pastures, commercial garden, school
7.07	7.73	3600 S. 3450 E.	3800 S. 3900 E.	fields, orchards, some residential, 1 irrigation diversion, passes under freeway, (crossing at Mill Creek Road is mile point 7.73).

\* Mile point 0 is confluence with the Jordan River

TABLE II (cont'd)  
GENERAL DESCRIPTION OF VALLEY STREAMS

B. BIG COTTONWOOD

Mile Point		Address(Approximate)		Creek and Surrounding Area Description
From	To	From	To	
0*	0.53	4200 S. 750 W.	4170 S. 400 W.	fields, Cottonwood and Murray STP (note these do not discharge to Big Cottonwood Creek).
0.53	1.20	4170 S. 400 W.	4200 S. 100 E.	campground, factory, feedlot, railroad construction area, laundry.
1.29	1.93	4200 S. 100 E.	4500 S. 340 E.	trailer court, apartments, condominiums, residences
1.93	2.35	4500 S. 340 E.	4670 S. 510 E.	residential, 2 creeks enter (origin?)
2.35	4.03	5670 S. 510 E.	4800 S. 900 E.	fields, few residences, canal flow-Jordan and Salt Lake Canal extension
4.03	4.24	4800 S. 900 E.	4750 S. 1000 E.	fields, corral, feedlot, pasture
4.24	4.52	4750 S. 1000 E.	4750 S. 1300 E.	residential, condominiums, pasture
4.52	5.09	4750 S. 1300 E.	4850 S. 1650 E.	mostly pasture, park, few residences
5.09	5.34	4850 S. 1650 E.	4800 S. 1800 E.	fields, residential
5.34	6.09	4800 S. 1800 E.	5100 S. 2100 E.	community shopping center (Cottonwood Mall)
6.09	8.12	5100 S. 2100 E.	6250 S. 2800 E.	residential, corrals, canal flow from Jordan and Salt Lake canal
8.12	9.44	6250 S. 2800 E.	6800 S. 3500 E.	fields, gravel pits, diversion to Big Cottonwood upper canal (crossing at Big Cotton Canyon road is mile point 9.44).

\* Mile point 0 is confluence with the Jordan River



TABLE II (ccnt'd)  
GENERAL DESCRIPTION OF VALLEY STREAMS

C. LITTLE COTTONWOOD

Mile Point		Address(Approximate)		Creek and Surrounding Area Description
From	To	From	To	
0*	0.72	4825 S. 550 W.	4900 S. 100 W.	fields, very few residences, passes under freeway
0.72	1.10	4900 S. 100 W.	5150 S. 100 E.	fields, fill area, construction area, asphalt plant
1.10	1.95	5150 S. 100 E.	5300 S. 500 E.	park, parking lots, fairgrounds
1.95	3.03	5300 S. 500 E.	5840 S. 700 E.	residential, fields, feed lot
3.03	3.90	5840 S. 700 E.	6200 S. 985 E.	residential, fields
3.90	4.71	6200 S. 985 E.	6900 S. 1200 E.	pastures, alfalfa, commercial, nursery, canal flow from Jordan and Salt Lake canal
4.71	5.68	6900 S. 1200 E.	7450 S. 1400 E.	fields, some residential, canal flow from East Jordan canal extension
5.68	6.57	7450 S. 1400 E.	8150 S. 2500 E.	few pastures and residential, fields canal flow from Willow Creek Country Club golf course
6.57	9.03	8150 S. 2500 E.	9450 S. 3450 E.	fields, few residences
9.03	10.17	9450 S. 3450 E.	9800 S. 4000 E.	fields, springs at Glacio Park (crossing at Little Cottonwood Road is mile point 10.17).

\* Mile point 0 is confluence with the Jordan River

TABLE III  
POLLUTION SOURCES OF THE JORDAN RIVER (2)

River Miles	Description	Point or Non-Point
0.00	zero point*	np
5.92	South Davis WWTP effluent	p
6.08	drain from Union Stock Yards, Cudahy Lane Crossing	np
7.34	Bonneville Supply Canal	p
9.60	storm drain, 1 - 24"	np
10.27	storm drain at 1000 North, 1 - 24"	np
10.75	storm drain at 700 North, 1 - 18"	np
12.41	storm drain at North Temple, 1 - 84", City Creek	np
12.61	Utah Power & Light Plant effluent	p
13.04	storm drain at 300 South, 1 - 21"	np
13.25	storm drain at 400 South, 1 - 48"	np
13.40	storm drain at 500 South, 1 - 24"	np
13.56	storm drains at 600 South 1 - (6'3" x 5'), 1 - 24", 1 - 30"	np
13.71	storm drain at 700 South, 1 - 15"	np
13.94	storm drains at 800 South, 2-(6'6" x 3'6") 1 - (6'6" x 5'), 1 - 24"	np
14.13	storm drain at 900 South, 1 - (5' x 4')	np
14.18	storm drain at 950 South, 1 - 18"	np
14.39	storm drain at 1075 South, 1 - 15"	np
14.68	storm drain at 1200 South, 1 - 12"	np
15.00	storm drains at 1300 South, 1 - (5' x 12') 1 - 60"	np
17.89	Kearns-Chesterfield drain, 1 - (6' x 12')	np
18.11	Mill Creek	p

\* The "zero point" is located where the river discharges into diked ponds near the shoreline of the Great Salt Lake, approximately 600 feet north and 2,650 feet west of the southeast corner of Section 14, Township 2 North, Range 1 West, Salt Lake Meridian.

TABLE III (cont'd)  
 POLLUTION SOURCES OF THE JORDAN RIVER (2)

River Miles	Description	Point or Non-Point
18.33	Salt Lake Suburban WWTP effluent	P
18.68	Granger-Hunter WWTP effluent	P
19.18	storm drain at 3300 South, 1 - 42"	np
20.44	storm drain at 3900 South, 1 - 42"	np
21.43	Big Cottonwood Creek	P
22.06	Murray WWTP effluent	P
22.50	Mill Race Ditch return	P
22.62	Little Cottonwood Creek	P
23.96	storm drain at 5400 South, 1 - 66"	np
26.37	Tri-Community WWTP effluent	P
27.19	North Jordan Canal spillway	P
27.48	Bingham Creek	P
29.71	Dry Creek	P
31.52	storm drains at 10600 South	np
32.09	Willow Creek	P
32.46	Midas Creek and Butterfield Creek	P
34.35	storm drain at 12600 South	np
35.51	Corner Canyon Creek	P
38.02	Rose Creek	P

TABLE IV  
SALT LAKE COUNTY IRRIGATION RETURN FLOWS (1)

Rose Creek (as it crosses all major canals)

3300 feet south of 12600 South, Utah & Salt Lake Canal

2300 feet south of 12600 South on Utah and Salt Lake Canal

320 feet south of 12600 South on Utah and Salt Lake Canal

1000 feet north of 11800 South on Utah and Salt Lake Canal

1920 feet north of 7000 South on Utah and Salt Lake Canal

850 feet south of 7000 South on Utah and Salt Lake Canal

1650 feet south of 7000 South on Utah and Salt Lake Canal

2300 feet south of 7000 South on South Jordan Canal

1300 feet south of 7000 South on South Jordan Canal

1500 feet north of 7000 South on South Jordan Canal

3600 West immediately north of 5400 South on Utah and Salt Lake Canal

1200 feet south of 10400 South and 850 feet east of 2200 West on Utah and Salt Lake Canal

1825 feet east of 1700 West and 3200 feet north of 10400 South on the South Jordan Canal

3400 feet south of 7800 South and 2650 feet east of 2700 West on the South Jordan Canal

4000 feet south of 5400 South and 1650 feet west to Redwood Road on South Jordan Canal

1200 feet south of 5400 South and 1200 feet east of 2700 West on South Jordan Canal

700 feet west of 3600 West and 600 feet south of 4400 South on South Jordan Canal

400 feet west of 3200 West and 1300 feet south of 4700 South on South Jordan Canal

South Jordan Canal ends at 4000 West and irrigation water drops into the Kearns/Chesterfield storm drain

Bingham Creek

600 feet north of the North Jordan diversion from the Jordan River on the North Jordan Canal

1300 feet north of 6200 South and 2200 feet east of 1700 West on the North Jordan Canal

TABLE IV (cont'd)

2500 feet east of 1700 West and 1400 feet south of 5400 South  
on the North Jordan Canal

1000 feet north of 5400 South and 2300 east of 1700 West  
on the North Jordan Canal

800 feet south of 7800 South on the Jordan River

6200 feet south on the Jordan River

2000 feet north of 6200 South on the Jordan River

1000 feet north of Bullion Street on the Jordan River

200 feet south of 4800 South on the Jordan River/Barneys Creek

300 feet north of 4800 South on the Jordan River

1000 feet south of 4800 South on the Jordan River

combination storm drain, irrigation return flow at 4800 South  
from the Jordan River