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APPENDIX 1

Summary of Hydrologic Information

Appendix 1: <u>Data Sources and Rationale for Chosen Years in the Daily Flow Figures and Tables</u>

The following table compiles the data sources and the chosen years in the daily flow compilations of Figures 1, 3, 4, and 6 (Unimpaired Inflow and Actual Outflow) and Tables 5, 6, 7 (Lowland Water Distribution).

Figures 3, 4, and 6 graphically display the seasonal and annual range of unimpaired and actual daily river flow into the Tulare Lake Basin Lowlands at the terminal reservoirs using the same very dry (1988) and wet (1998) and median (2000) year-type in each figure.

Tables 5, 6, and 7 compile the annual volumes and seasonal variation of daily flows in the lowland water distribution systems (river and canal) in a range of year types from dry to wet. The water distribution records are generally only published in the watermaster reports for each river. We were not able to obtain those reports directly from the watermasters and thus had to rely on the reports available from the EPA or the Water Resources Archives Library. As demonstrated in the following table, the years of available data were different for each river system.

Figure or Table	Data Displayed	Years Chosen	Data source	Notes
Figure 1 - Kings River	Pine Flat Reservoir unimpaired inflow and actual outflow	1988 (dry) 1998 (wet) 2000 (median)	USACOE	data compiled by Sacramento district and sent on CD
Figure 3 - Kaweah River	Kaweah Reservoir unimpaired inflow and actual outflow	1988 (dry) 1998 (wet) 2000 (median)	USACOE	data compiled by Sacramento district and sent on CD
Figure 4- Tule River	Success Reservoir unimpaired inflow and actual outflow	1988 (dry) 1998 (wet) 2000 (median)[1]	USACOE	data compiled by Sacramento district and sent on CD
Figure 6- Kern River	Isabella Reservoir unimpaired inflow and actual outflow	1988 (dry) 1998 (wet) 2000 (median)	USACOE	data compiled by Sacramento district and sent on CD

Figure or Table	Data Displayed	Years Chosen	Data source	Notes
Table 5- Kings River Water Distribution	Annual Volume and seasonal flow amounts	1979 (average) 1988 (dry) 1995 (wet)	Kings River Water Association Watermaster Reports	From University of California Water Resources Archives
Table 6- Kaweah River Water Distribution	Annual Volume and seasonal flow amounts	1977 (dry) 1978 (wet) 1979 (average)	Kaweah River Flows, diversions, and Storage, 1975-80. CADWR Bulletin 49-F	From University of California Water Resources Archives
Table 7- Tule River Water Distribution	Annual Volume and seasonal flow amounts	1996 (average) 1998 (wet) 2000 (dry)[1]	Tule River Water Association Watermaster Reports	From EPA San Francisco office

[1] The water year 2000 runoff was close to a median year (54% exceedance value) but it was only 69% of the average runoff from 1962-2006. It was the driest year of the watermaster reports available from the EPA although it is not nearly as dry as the years chosen for the Kings (1988) or Kaweah (1977) Rivers.

APPENDIX 2

Site Visit Log of Trip to Tulare Lake Basin (June 29 and 30, 2006)

Site Visit Log of Trip to Tulare Lake Basin

Date: June 29, 2006

Stop 1 **Gould Canal and Friant-Kern Canal**

- Observed turn-out structure that discharges water from Friant-Kern Canal (FKC) into the Gould Canal and Enterprise Canals.

Stop 2 **Fresno Canal, Kings River, and Friant-Kern Canal** (Photo 1)

- Observed turn-out structure on FKC that moves water into Fresno Canal and Kings River.
- Observed weir diversion from Fresno Canal into the Kings River.

Stop 3 **Kings River pump-in into the Friant-Kern Canal**

- Observed pump-in location from Kings River (Alta Slough/76 Channel) into the Friant-Kern Canal.

Stop 4 **Alta Slough**

- Observed the cobble Weir that diverts water into Alta Slough (aka 76 Channel).

Stop 5 **Alta Canal and Frankwood Avenue** (Photo 2)

- Observed Alta Irrigation District head gate

Stop 6 **Wutchumna Ditch and Friant-Kern Canal**

- Observed pump location from Wutchumna Ditch into FKC.

Stop 7 **St. John's River and Friant-Kern Canal**

- St. John's River at pump-in to FKC.
- FKC siphon under St. John's River
- Observed FKC turn-out structure that discharges water into St. John's River.

Stop 8 **FKC Discharge to Tulare Irrigation District Canals**

Stop 9 **Tule River and Friant-Kern Canal** (Photo 3)

- Observed permanent pumps in Tule River Wasteway used to pump water from Tule River into FKC.
- Turn out from FKC to Tule River.

Stop 10 **Deer Creek and Friant-Kern Canal at County Road 208**

- FKC turn-out into Deer Creek west of County Road 208 (downstream side).

Stop 11 **White River and County Road 208**

Stop 12 **Poso Creek and County Road 208**

Stop 13 **Terminus of Friant-Kern Canal at Coffee Road** (Photos 4 and 5)

- Terminus gates at end of FKC, channel connecting FKC to Kern River, and Kern River.
- FKC turn out into Arvin-Edison Canal.
- Connection from FKC to Cross Valley Canal (CVC).

Date: June 30, 2006

Stop 14 **St. John's River at Alta Avenue Bridge**

Stop 15 **Cottonwood Creek at Alta Avenue Bridge**

Stop 16 **Banks Ditch near intersection of Alta Avenue and Avenue 360**

- Observed drop structures in canal

Stop 17 **Banks Ditch before Rd. 52** (Photo 6)

- Observed drop structure in canal

Stop 18 **Lakeland Canal and Denver Avenue**

Stop 19 **Unnamed Canal near People's Ditch** (Photo 7)

- Observed flume on unnamed ditch near People's Ditch

Stop 20 **People's Ditch** (Photo 8)

- Observed drop structure in canal

Stop 21 **People's Ditch and Riverside Ditch**

- Observed drop structure in canal

Stop 22 **Kings River and People's Ditch**

- Observed drop structure in canal

Stop 23 **Lakeland Canal and unpaved road**

- Observed drop structure in canal

Stop 24 **Lakeland Canal and Corcoran Ponds** (Photo 9)

- Water level in Corcoran Ponds

Stop 25 **Empire Weir Number 2 on Kings River near Highway 41 Bridge** (Photos 10 and 11)

- Observe three-way division of water at Empire weir: Tulare Lake Canal, Kings River Canal, and Blakely Canal.

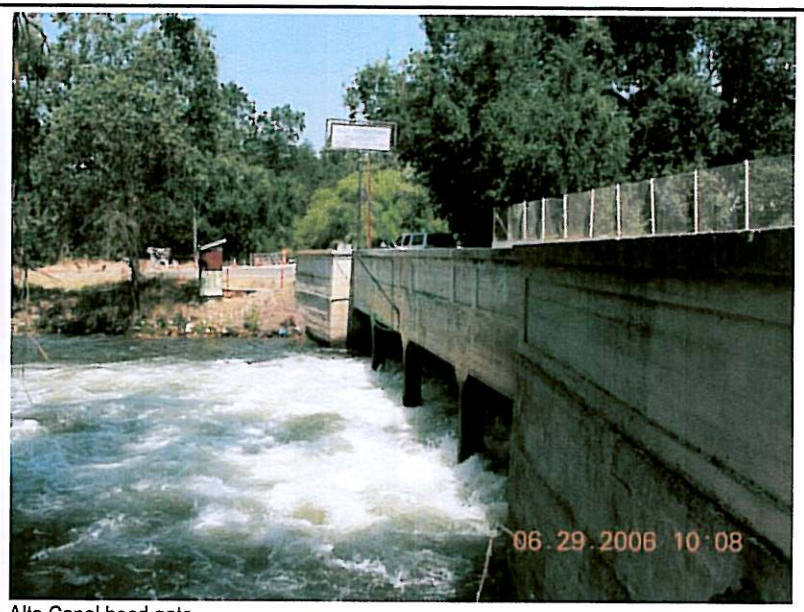
- Observed drop structures

Stop 26 **Kings River at Empire Weir Number One**

Stop 27 **Fresno Slough at Mt. Whitney Road Crossing** (Photo 12)
- Water level in Fresno Slough

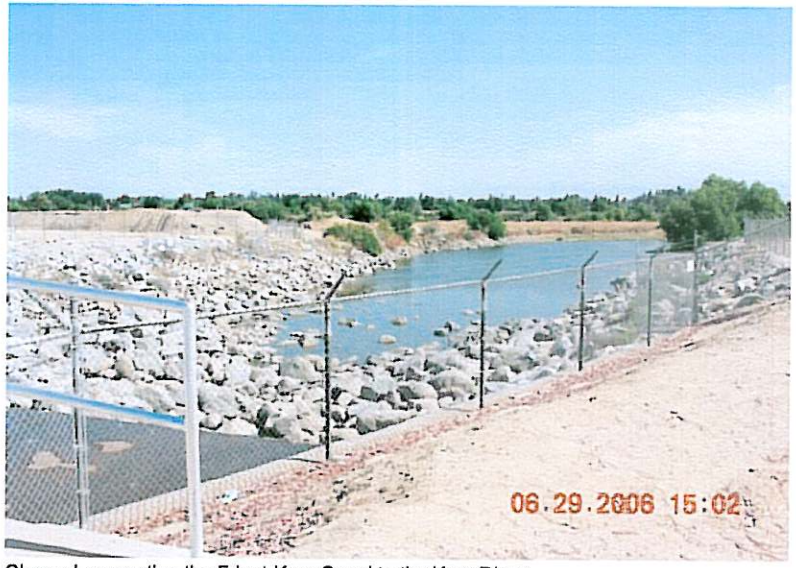
Stop 28 **Fresno Slough at Elkhorn Grade Road Crossing**
- Water level in Fresno Slough

Friant-Kern Canal gate that moves water into Fresno Canal and the Kings River.



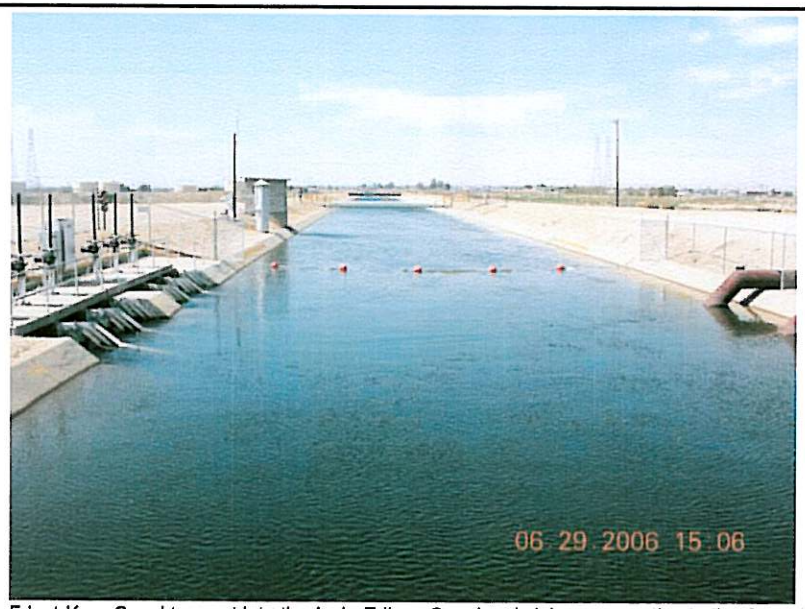
Alta Canal head gate.

Permanent pumps in the Tule River Wasteway used to move water from the Tule River into the Friant-Kern Canal.



Channel connecting the Friant-Kern Canal to the Kern River.

Selected Site Visit Photos



Friant-Kern Canal turn out into the Arvin-Edison Canal and siphon connection to the Cross Valley Canal.

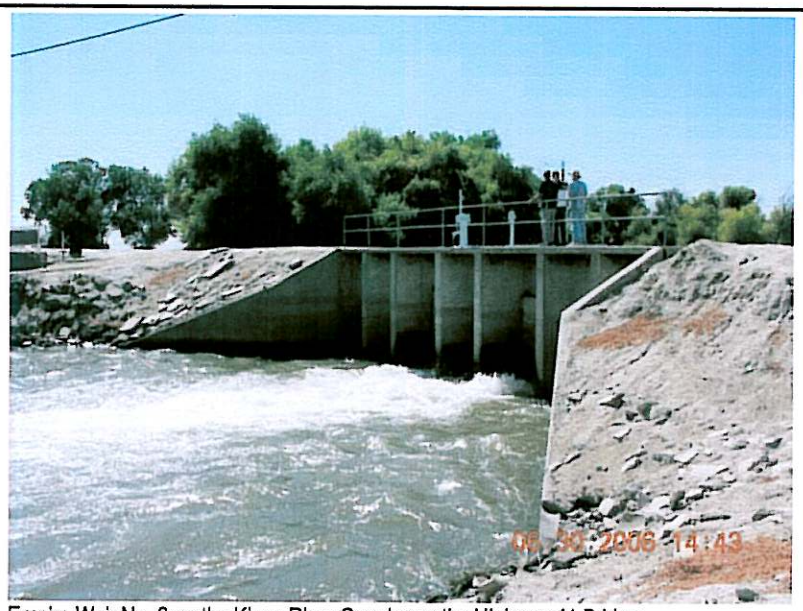
Drop structure in Banks Ditch.

Flume on unnamed canal near People's Ditch.

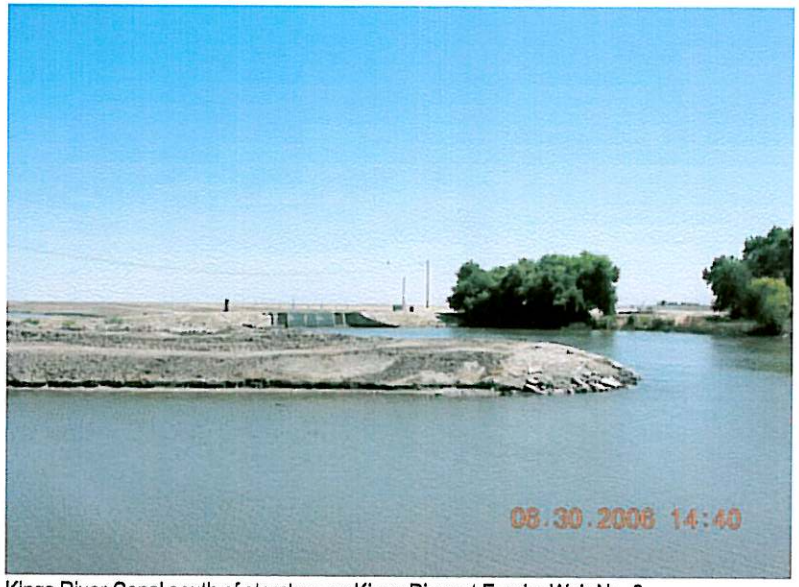
Drop structure in People's Ditch.

Selected Site Visit Photos

Corcoran Ponds.



Empire Weir No. 2 on the Kings River Canal near the Highway 41 Bridge.



Kings River Canal south of structure on Kings River at Empire Weir No. 2.

Fresno Slough at Mt. Whitney Road Crossing.

Selected Site Visit Photos

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