

List of Water Needs Assessment Summaries

District	Available
Arvin-Edison WSD	X
Delano-Earlimart ID	X
Exeter ID	X
Fresno ID	X
Garfield WD	
International WD	
Ivanhoe ID	X
Lewis Creek WD	
Lindmore ID	X
Lindsay-Strathmore ID	X
Lower Tule River ID	X
Orange Cove ID	X
Porterville ID	X
Saucelito ID	X
Shafter-Wasco ID	X
Southern San Joaquin MUD	X
Stone Corral ID	X
Tea Pot Dome WD	X
Terra Bella ID	X
Tulare ID	X
Chowchilla WD	X
Madera ID	X
Gravelly Ford WD	X
Other	
Alpaugh	X
Atwell Island WD	X
Hills Valley ID	X
Kern-Tulare WD	X
Pixley ID	X
Rag Gulch WD	X

Agricultural and M&I Water Supply

ALPAUGH ID

Contractor's Water Supply Sources and Quantities (acre-feet)

Timeframe	Surface Water Supply				Groundwater Supply				Total Supply			
	Reference Delivery	USBR Total Deliv/Max	SWP	Local Source	Irrspr/Recycle In	Irrspr/Out	District	Private		Safe Yield	Recharge	
1	2	3	4	5	6	7	8	9	10	11	12	13
1989	0	0	0	0	0	0	300	19,623	0	1,370	0	19,323
2025	0	1,054	0	0	0	0	0	1,370	0	1,370	0	2,424

Contractor's Agricultural Water Demands Maximum Productive Acres= 4,902

Timeframe	Crop Requirement (acre-feet)	District Irrig. Efficiency (%)	Effective Precip (acre-feet)	Reference Effective Precip (acre-ft)	Calculated Net Crop Water Req (acre-feet)	USBR Not Crop Water Req (acre-feet)	Average Irrigated Acres (acres)	Reference Irrigated Acres (acres)	Calculated FDR (AF/acre)	USBR FDR (AF/acre)	Conveyance Loss (acre-feet)	Total Ag Demand (acre-feet)
1	15	16	17	18	19	20	21	22	23	24	25	26
1989	14,369	75	0	2,078	19,159	17,140	5,194	5,194	3.69	3.30	2,396	21,555
2025	24,960	85	3,200	3,200	25,600	25,600	8,000	8,000	3.20	3.20	242	25,842

Contractor's M&I Water Demands

Timeframe	Residential Water Demand				Nonresidential Water Demand				Loss				Total Unmet Demand (acre-feet)
	Population	Per Capita Demand (gpcd)	Total Demand (acre-feet)	Conum/Institt	Industrial Demand (acre-feet)	Total Demand (acre-feet)	Unacc/Distr	Ref Urban Per Capita Dmd (gpcd)	Calc Urban Per Capita Dmd (gpcd)	Total MCI Demand (acre-feet)	Ag. MCI Dmd (acre-feet)	Total MCI Demand (acre-feet)	
1	28	29	30	31	32	33	34	35	36	37	38	39	
1989	28	29	30	31	32	33	34	35	36	37	38	39	
2025	0	0	0	0	0	0	0	0	0	0	0	0	

Notes: In 1989, conveyance loss includes seepage to saline areas and environmental use. In 2025, conveyance losses assumed to be 10% of supplies; groundwater pumping limited to safe yield.

* Represents Maximum Contract Amount

Water supply and demand information is for a normal hydrologic year. Crop Water Requirement includes leaching req. and cultural water but not irrigation efficiency.

Information from contractor's water management plan or data submitted for historical years. USBR reference information for future years

Quality control check; information is either calculated by USBR staff, or from reference.

Agricultural and M&I Water Supply

ARVIN-EDISON WSD

Contractor's Water Supply Sources and Quantities (acre-feet)

Timeframe	Surface Water Supply				Groundwater Supply				Total Supply			
	Reference Delivery	USBR Total Deliv/Max	SWP	Local	Local Source	Trsftr/Recycle In	Trsftr/Recycle Out	District		Private	Safe Yield	Recharge
1	2	3	4	5	6	7	8	9	10	11	12	13
1989 WC Plans	0	40,687	0	0	Kern River	121,037	42,044	36,278	198,388	89,900	5,907	348,439
1996 WC Plans	163,078	233,167	0	23,336	Kern River	55,004	84,158	0	234,297	89,900	71,587	390,059
2025	164,670 *	164,670	0	0	Kern River	40,000	42,000	9,000	80,900	89,900	14,670	237,900

Contractor's Agricultural Water Demands Maximum Productive Acres= 112,935

Timeframe	Crop Water Requirement (acre-feet)	District Irrig. Efficiency (%)	Effective Precip (acre-feet)	Reference Effective Precip (acre-ft)	Calculated Net Crop Water Req (acre-feet)	USBR Net Crop Water Req (acre-feet)	Average Irrigated Acres (acres)	Reference Irrigated Acres (acres)	Calculated FUR (AF/acre)	FUR (AF/acre)	USBRR FDR (AF/acre)	Conveyance Loss (acre-feet)	Total Ag Demand (acre-feet)
1	15	16	17	18	19	20	21	22	23	24	25	26	26
1989	259,862	75	0	25,352	346,483	211,268	109,882	84,507	3.15	2.50	1,956	348,439	
1996	324,690	78	30,962	376,574	258,680	258,680	129,340	129,340	2.91	2.00	13,485	390,059	
2025	267,734	85	25,868	38,802	284,548	284,548	129,340	129,340	2.00	2.00	11,000	295,548	

Contractor's M&I Water Demands

Timeframe	Residential Water Demand				Nonresidential Water Demand				Loss				Total Unmet Demand
	Population	Per Capita Demand (gpcd)	Total Demand (acre-feet)	Industrial Demand (acre-feet)	Comm/Instt Demand (acre-feet)	Total Demand (acre-feet)	Unace /Distr (acre-feet)	Ref Urban Per Capita Dmd (gpcd)	Calc Urban Per Capita Dmd (gpcd)	Total MCI Demand (acre-feet)	Ag+ MCI Dmd (acre-feet)	Total Demand (acre-feet)	
1	28	29	30	31	32	33	34	35	36	37	38	39	39
1989			0			0	0				0	348,439	0
1996			0			0	0				0	390,059	0
2025			0			0	0				0	295,548	57,648

Notes: 1989 - no effective precip.

2025 - 164,670 AF represents 100% Class I and 40% Class II. No normal hydrologic year supply from Kern River.

* Represents Maximum Contract Amount

Water supply and demand information is for a normal hydrologic year. Crop Water Requirement includes leaching req. and cultural water but not irrigation efficiency.

Information from contractor's water management plan or data submitted for historical years. USBR reference information for future years

Quality control check; information is either calculated by USBR staff, or from reference.

Division: Friant

Water Needs Assessment

District:

Date: 6/21/2001

Agricultural and M&I Water Supply

ATWELL ISLAND WD

Contractor's Water Supply Sources and Quantities (acre-feet)

Timeframe	Surface Water Supply				Groundwater Supply				Total Supply			
	Reference Delivery	USBR Total Deliv/Max	SWP	Local	Local Source	Irr/Retn /Recycle In	Irr/Retn /Recycle Out	District Private		Safe Yield Recharge		
1	2	3	4	5	6	7	8	9	10	11	12	13
1989	0	0	0	0	0	0	0	0	12,982	1,250	0	12,982
2025	0	1,055	0	0	0	0	0	1,250	0	1,250	0	2,305

Contractor's Agricultural Water Demands Maximum Productive Acres= 6,232

Timeframe	Crop Water Requirement (acre-feet)	District Irrig. Efficiency (%)	Effective Precip (acre-feet)	Reference Effective Precip (acre-ft)	Calculated Net Crop Water Req (acre-feet)	USBR Net Crop Water Req (acre-feet)	Average Irrigated Acres (acres)	Reference Irrigated Acres (acres)	Calculated FDR (AF/acre)	USBR FDR (AF/acre)	Conveyance Loss (acre-feet)	Total Ag Demand (acre-feet)
1989	9,903	75	556	1,858	12,463	12,542	4,645	4,645	2.68	2.70	2,323	14,786
2025	12,079	85	1,793	1,793	12,101	12,101	4,482	4,482	2.70	2.70	230	12,331

Contractor's M&I Water Demands

Timeframe	Residential Water Demand				Non-residential Water Demand				Less Unacc /Dist	Total Demand (acre-feet)	Total M&I Demand (acre-feet)	Total Ag+ M&I Dmd (acre-feet)	Unmet Demand (acre-feet)
	Population	Per Capita Demand (gpcd)	Industrial (acre-feet)	Total Demand (acre-feet)	Commer/Inst (acre-feet)	Total Demand (acre-feet)	Ref Urban Per Capita Dmd (gpcd)	Calc Urban Per Capita Dmd (gpcd)					
1989	28	29	31	32	33	34	35	36	37	38	39	14,786	1,804
2025												12,331	10,026

Notes: In 1989, conveyance loss includes seepage to saline area. In 2025, conveyance loss assumed to be 10% of supplies; groundwater pumping limited to safe yield

* Represents Maximum Contract Amount

Water supply and demand information is for a normal hydrologic year. Crop Water Requirement includes leaching req. and cultural water but not irrigation efficiency.

Information from contractor's water management plan or data submitted for historical years. USBR reference information for future years

Quality control check; information is either calculated by USBR staff, or from reference.

Agricultural and M&I Water Supply

CHOWCHILLA WD

Contractor's Water Supply Sources and Quantities (acre-feet)

Timeframe	Surface Water Supply				Groundwater Supply				Total Supply		
	Reference Delivery	USBR Total Deliv/Max	SWP	Local	Local Source	Trsfir/Rtrn /Recycle In	Trsfir/ Out	District Private		Safe Yield Recharge	
1	2	3	4	5	6	7	8	9	11	12	13
1989 WC Plan	0	57,306	0	0	0	0	0	0	205,000	22,922	239,384
1996 WC Plans	138,738	174,728	0	31,345	Chowchilla	0	28,000	0	119,280	44,164	253,189
2025	143,000 *	143,000	0	31,345	Chowchilla	0	0	0	56,185	44,164	186,366

Maximum Productive Acres= 72,096

Contractor's Agricultural Water Demands

Timeframe	Crop Requirement (acre-feet)	District Irrig. Efficiency (%)	Effective Precip (acre-feet)	Reference Effective Precip (acre-ft)	Calculated Net Crop Water Req (acre-feet)	USBR Net Crop Water Req (acre-feet)	Average Irrigated Acres (acres)	Reference Irrigated Acres (acres)	Calculated FDR (AF/acre)	USBR FDR (AF/acre)	Conveyance Loss (acre-feet)	Total Ag Demand (acre-feet)
1	15	66	17	18	19	20	21	22	23	24	25	26
1989	180,267	75	0	20,456	240,356	153,420	66,638	51,140	3.61	3.00	0	240,356
1996	191,346	75	15,193	25,714	234,871	192,855	63,637	64,285	3.69	3.00	13,255	248,126
2025	201,761	85	29,030	29,030	203,213	203,213	72,576	72,576	2.80	2.80	13,255	216,468

Contractor's M&I Water Demands

Timeframe	Residential Water Demand				Non-residential Water Demand				Loss			
	Population	Per Capita Demand (gpcd)	Industrial Demand (acre-feet)	Total Demand (acre-feet)	Common/Insttit (acre-feet)	Total Demand (acre-feet)	Unacc /Distr (acre-feet)	Ref Urban Per Capita Dmd (gpcd)	Calc Urban Per Capita Dmd (gpcd)	Total M&I Demand (acre-feet)	Ag+ M&I Dmd (acre-feet)	Total Unmet Demand (acre-feet)
1	28	29	31	30	32	33	34	35	36	37	38	39
1989				0		0	0			0	240,356	972
1996				0		0	0			0	248,126	-5,063
2025				0		0	0			0	216,468	30,102

Notes: Buchanan supply is included in USBR supply 1989- no conveyance loss indicated
 2025 - 143,000AF represents 100% Class I, 100% Buchanan Contract, and 40% Class II; groundwater pumping= 18 TAF safe yield + 38,185 AF recharge.

* Represents Maximum Contract Amount

Water supply and demand information is for a normal hydrologic year. Crop Water Requirement includes leaching req. and cultural water but not irrigation efficiency.

Information from contractor's water management plan or data submitted for historical years. USBR reference information for future years

Quality control check; information is either calculated by USBR staff, or from reference.

Agricultural and M&I Water Supply

DELANO-EARLIMART ID

Contractor's Water Supply Sources and Quantities (acre-feet)

Timeframe	Surface Water Supply				Groundwater Supply				Total Supply			
	Reference Delivery	USBR Total Dely/Max	SWP	Local Source	Irstr/Rtrn /Recycle In	Irstr/ Out	District Private	Safe Yield Recharge				
1	2	3	4	5	6	7	8	9	10	11	12	13
1989 WC Plan	0	99,087	0	0	0	6,359	2,129	0	79,937	13,698	169,556	
1996 WC Plan	140,294	161,581	0	0	0	0	15,659	0	39,961	12,847	173,036	
2025	138,600 *	138,600	0	0	0	0	0	0	1,100	720	138,980	

Maximum Productive Acres= 53,215

Contractor's Agricultural Water Demands

Timeframe	Crop Requirement (acre-feet)	District Irrig. Efficiency (%)	Effective Precip (acre-feet)	Reference Effective Precip (acre-ft)	Calculated Net Crop Water Req (acre-feet)	USBR Net Crop Water Req (acre-feet)	Average Reference		Calculated FDR (AF/acre)	Conveyance Loss (acre-feet)	Total Ag Demand (acre-feet)	
							Irrigated Acres (acres)	Irrigated Acres (acres)				
1	15	16	17	18	19	20	21	22	23	24	25	26
1989	141,399	80	5,063	18,535	170,420	134,377	49,699	46,337	3.43	2,109	172,529	
1996	144,136	80	6,414	20,133	172,153	150,996	50,971	50,332	3.38	2,918	175,071	
2025	137,370	85	20,389	20,389	137,624	137,624	50,972	50,972	2.70	2,918	140,542	

Contractor's M&I Water Demands

Timeframe	Residential Water Demand			Nonresidential Water Demand			Loss			Total M&I Demand (acre-feet)	Total Unmet Demand (acre-feet)	
	Population	Per Capita Demand (gpcd)	Total Demand (acre-feet)	Industrial	Comm/Instt	Total Demand (acre-feet)	Unacc/Distr	Ref Urban Per Capita Dmd (gpcd)	Calc Urban Per Capita Dmd (gpcd)			
1	28	29	30	31	32	33	34	35	36	37	38	39
1989	0	0.0	0	0	0	0	0	274.0	0.0	0	172,529	2,973
1996	0	0.0	0	0	0	0	0	274.0	0.0	0	175,071	2,035
2025	0	0.0	0	0	0	0	0	0	0	0	140,542	1,562

Notes: 2025 - 138,600AF represents 100% Class I and 40% Class II. GIS land class shows 7,093 productive acres but there is a large area not yet classified.

* Represents Maximum Contract Amount

Water supply and demand information is for a normal hydrologic year. Crop Water Requirement includes leaching req. and cultural water but not irrigation efficiency.

Information from contractor's water management plan or data submitted for historical years. USBR reference information for future years

Quality control check; information is either calculated by USBR staff, or from reference.

Agricultural and M&I Water Supply

EXETER ID

Contractor's Water Supply Sources and Quantities (acre-feet)

Timeframe	Reference Delivery	USBR Total Deliv/Max			Surface Water Supply			Groundwater Supply			Total Supply	
		2	3	4	SWP	Local	Local Source	Trsftr/Retrn /Recycle In	Trsftr/Out	District Private		Safe Yield Recharge
1989 WC Plan	0	11,690	0	0	0	150	2,400	0	23,860	0	0	33,300
1996 WC Plan	18,547	18,520	0	0	0	0	6,400	0	18,540	0	0	30,660
2025	19,100 *	19,100	0	0	0	0	0	0	11,400	0	0	30,500

Contractor's Agricultural Water Demands Maximum Productive Acres= 12,998

Timeframe	Crop Requirement (acre-feet)	District Irrig. Efficiency (%)	Effective Precip (acre-feet)	Reference Effective Precip (acre-ft)	Calculated Net Crop Water Req (acre-feet)	USBR Net Crop Water Req (acre-feet)	Average Irrigated Acres (acres)	Reference Irrigated Acres (acres)	Calculated FDR (AF/acre)	USBR FDR (AF/acre)	Conveyance Loss (acre-feet)	Total Ag Demand (acre-feet)
1989	35,450	75	2,300	2,301	44,200	46,028	12,630	11,507	3.50	4.00	0	44,200
1996	34,190	75	2,300	2,303	42,520	46,056	12,670	11,514	3.36	4.00	100	42,620
2025	40,227	85	2,534	2,534	44,345	44,345	12,670	12,670	3.50	3.50	100	44,445

Contractor's M&I Water Demands

Timeframe	Residential Water Demand			Nonresidential Water Demand			Loss			Total M&I Demand (acre-feet)	Total Ag+ M&I Dmd (acre-feet)	Unmet Demand (acre-feet)
	Population	Per Capita Demand (gpcd)	Total Demand (acre-feet)	Industrial	Comm/Instit	Total Demand (acre-feet)	Unacc /Dist	Unacc /Dist	Unacc /Dist			
1989	28	29	30	31	32	33	34	35	36	37	38	39
1996												
2025												

Notes: 1989 & 1996 Transfers Out & private pumping include 2,400 AF each to depict groundwater extraction by City of Exeter. 2025 - 19,100AF represents 100% Class I and 40% Class II.

* Represents Maximum Contract Amount

Water supply and demand information is for a normal hydrologic year. Crop Water Requirement includes leaching req. and cultural water but not irrigation efficiency.

Information from contractor's water management plan or data submitted for historical years. USBR reference information for future years

Quality control check; information is either calculated by USBR staff, or from reference.

Water Needs Assessment

FRESNO ID

Contractor ID: 202330

Friant

Contractor's Water Supply Sources and Quantities (acre-feet)

Date: 3/25/2004 2:43:09 P

Timeframe	Surface Water Supply						Groundwater Supply				Total Supply	
	Reference Delivery	USBR Total Deliv/Max	SWP	Local	Local Source	Tsfr / Rtn / Recycle In	Tsfr / Out	District	Private	Safe Yield		Recharge
1	2	3	4	5	6	7	8	9	10	11	12	13
1989	0	59,312	0	357,104	Kings Rvr	12,327	0	0	293,000	154,000	154,000	567,743
1996	15,107	90,081	0	508,895	Kings River	7,862	0	0	295,585	156,585	156,585	745,838
2025	30,000	90,000	0	391,840	Kings Rvr	16,250	0	0	263,291	180,000	180,000	581,381

Contractor's Agricultural Water Demands

Maximum Productive Acres: 149,347

Timeframe	Crop Water Requirement (acre-feet)	District	Ingr. Efficiency (%)	Effective Precip (acre-feet)	Reference Effective Precip (acre-ft)	Calculated Net Crop Water Req (acre-feet)	USBR Net Crop Water Req (acre-feet)	Average Irrigated Acres (acres)	Reference Irrigated Acres (acres)	Calculated FDR (AF/acre)	USBR FDR (AF/acre)	Conveyance Loss (acre-feet)	Total Ag Demand (acre-feet)
1989	430,580	75	75	47,033	64,993	511,396	487,449	163,120	162,483	3.14	3.00	8,000	519,396
1996	434,096	75	75	65,287	63,219	491,745	458,339	163,218	158,048	3.01	2.90	8,000	499,745
2025	424,298	85	85	67,216	67,216	420,096	420,098	168,039	168,039	2.50	2.50	8,000	428,096

Contractor's M&I Water Demands

Timeframe	Residential Water Demand				Nonresidential Water Demand				Loss	Ref Urban Per Capita Dmd (gpcd)	Total M&I Demand (acre-feet)	Total Ag + M&I Dmd (acre-feet)	Unmet Demand (acre-feet)
	Population	Per Capita Demand (gpcd)	Industrial (acre-feet)	Comm / Instit. (acre-feet)	Industrial (acre-feet)	Comm / Instit. (acre-feet)	Total Demand (acre-feet)	Unacc. / Distr. (acre-feet)					
1	28	29	30	31	32	33	34	35	36	37	38	39	39
1989	481,522	252.6	136,265	5,241	21,288	26,529	4,884	301.0	310.9	167,678	687,074	119,331	
1996	571,009	252.6	161,549	5,527	26,296	31,823	5,801	301.0	311.4	199,173	698,918	-46,920	
2025	977,850	225.7	247,186	8,611	30,074	38,685	8,874	269.0	269.1	294,745	722,841	141,460	

* Represents Maximum Contract Amount

Notes: COMBINED ANALYSIS: CITY OF FRESNO/FRESNO ID: 2025 - 90,000 AF represents 100% Class I + 40% Class II. Transfer In = reclaimed water. 124,291 AF of gw recharge assumed to be available for pumping in a normal year in addition to 139,000 AF safe yield.

Timeframe	Contractor's Water Supply Sources and Quantities (acre-feet)											
	Surface Water Supply					Groundwater Supply						
	Reference Delivery	USBR Total Deliv/Max	SWP	Local	Local Source	Trsfir/Recycle In	Trsfir/Trsn Out	District Private	Safe Yield	Recharge	Total Supply	
1	2	3	4	5	6	7	8	9	10	11	12	13
1989 WC Plan	0	69	0	0	0	0	0	0	21,100	69	21,100	21,100
1995	0	9,840	0	5,000	Cottonwoo	0	0	0	17,020	5,472	26,388	26,388
1996	8,402	15,831	0	5,491	Cottonwoo	0	0	0	0	5,472	15,850	15,850
2025	5,600 *	5,600	0	1,049	Cottonwoo	0	0	0	21,008	5,472	22,185	22,185

Maximum Productive Acres= 6,747

Contractor's Agricultural Water Demands

Timeframe	Crop Requirement (acre-feet)	District Irrig. Efficiency (%)	Effective Precip (acre-feet)	Reference Effective Precip (acre-ft)	Calculated Net Crop Water Req (acre-feet)	USBR Net Crop Water Req (acre-feet)	Average Irrigated Acres (acres)	Reference Irrigated Acres (acres)	Calculated FDR (AF/acre)	USBR FDR (AF/acre)	Conveyance Loss (acre-feet)	Total Ag Demand (acre-feet)
1989	18,602	75	449	3,377	24,204	23,638	6,275	8,442	3.86	2.80	0	24,204
1995	24,440	75	1,029	3,387	31,215	22,864	7,847	8,468	3.98	2.70	1,948	33,163
1996	20,404	74	883	3,387	26,380	20,323	8,498	8,468	3.10	2.40	1,948	28,328
2025	20,662	85	3,387	3,387	20,323	20,323	8,468	8,468	2.40	2.40	1,948	22,271

Contractor's M&I Water Demands

Timeframe	Residential Water Demand				Nonresidential Water Demand				Loss				Total M&I Demand (acre-feet)	Total M&I Dmd (acre-feet)	Unmet Demand (acre-feet)
	Population	Per Capita Demand (gpcd)	Total Demand (acre-feet)	Industrial (acre-feet)	Comm/Instt (acre-feet)	Total Demand (acre-feet)	Unacc /Dist (acre-feet)	Ref Urban Per Capita Dmd (gpcd)	Calc Urban Per Capita Dmd (gpcd)	Ag+ M&I Dmd (acre-feet)	Total M&I Dmd (acre-feet)	Unmet Demand (acre-feet)			
1	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42
1989	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42
1995	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1996	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2025	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Notes: 2025 - 5,600 AF represents 40% Class II. Groundwater pumping assumed to be available in a normal year = 15,837 AF safe yield + 5, 171 AF or recharge.

* Represents Maximum Contract Amount

Division: Friant

Water Needs Assessment

District:

Date: 6/21/2001

Agricultural and M&I Water Supply

GRAVELY FORD WD

Water supply and demand information is for a normal hydrologic year. Crop Water Requirement includes leaching req. and cultural water but not irrigation efficiency.

Information from contractor's water management plan or data submittal for historical years. USBR reference information for future years

Quality control check; information is either calculated by USBR staff, or from reference.

Division: Friant

Water Needs Assessment

District:

Date: 6/21/2001

Agricultural and M&I Water Supply

HILLS VALLEY ID

Contractor's Water Supply Sources and Quantities (acre-feet)

Timeframe	Surface Water Supply				Groundwater Supply				Total Supply			
	Reference Delivery	USBR Total Deliv/Max	SWP	Local	Local Source	Trsf/Retrn /Recycle In	Trsf/Out	District		Private	Safe Yield	Recharge
1	2	3	4	5	6	7	8	9	10	11	12	13
1989 WC Plan	3,072	3,072	0	0	0	1,390	0	0	4,000	1,048	0	8,462
1996 WC Plan	3,346 *	3,517	0	0	0	0	465	0	7,611	1,048	0	10,663
2025	3,346 *	4,300	0	0	0	0	0	0	1,048	1,048	0	5,348

Contractor's Agricultural Water Demands Maximum Productive Acres= 3,380

Timeframe	Crop Water Requirement (acre-feet)	District Irrig. Efficiency (%)	Effective Precip (acre-feet)	Reference Effective Precip (acre-ft)	Calculated Net Crop Water Req (acre-feet)	USBR Net Crop Water Req (acre-feet)	Average Irrigated Acres (acres)	Reference Irrigated Acres (acres)	Calculated FDR (AF/acre)	USBR FDR (AF/acre)	Conveyance Loss (acre-feet)	Total Ag Demand (acre-feet)
1989	7,260	75	1,049	300	8,281	5,696	3,067	1,499	2.70	3.80	0	8,281
1996	9,484	84	465	1,199	10,737	14,785	3,353	3,996	3.20	3.70	0	10,737
2025	9,841	85	1,006	1,006	10,394	10,394	3,353	3,353	3.10	3.10	0	10,394

Contractor's M&I Water Demands

Timeframe	Residential Water Demand				Nonresidential Water Demand				Loss				Total Unmet Demand (acre-feet)
	Population	Per Capita Demand (gpcd)	Total Demand (acre-feet)	Industrial (acre-feet)	Commercial/Instit (acre-feet)	Total Demand (acre-feet)	Unacc /Distr (acre-feet)	Ref Urban Per Capita Dmd (gpcd)	Calc Urban Per Capita Dmd (gpcd)	Total M&I Demand (acre-feet)	Ag+ M&I Dmd (acre-feet)	Total (acre-feet)	
1	28	29	30	31	32	33	34	35	36	37	38	39	
1989			0	0	0	0	0	0	0	0	8,281	-181	
1996			0	0	0	0	0			0	10,737	74	
2025			0	0	0	0	0			0	10,394	5,046	

Notes: 1989 - ag water demand calculated assuming USBR FDR. 2025 - CVP supply is the sum of 3,346 AF max contract amount and 954 AF subcontract through Tulare County.

* Represents Maximum Contract Amount

Water supply and demand information is for a normal hydrologic year. Crop Water Requirement includes leaching req. and cultural water but not irrigation efficiency.

Information from contractor's water management plan or data submitted for historical years. USBR reference information for future years

Quality control check; information is either calculated by USBR staff, or from reference.

Division: Friant

Water Needs Assessment

District:

Date: 6/21/2001

Agricultural and M&I Water Supply

IVANHOE ID

Contractor's Water Supply Sources and Quantities (acre-feet)

Timeframe	Surface Water Supply					Groundwater Supply					Total Supply	
	Reference Delivery	USBR Total Dev/Max	SWP	Local	Local Source	Trsf/Retn /Recycle In	Trsf/Retn /Recycle Out	District	Private	Safe Yield		Recharge
1	2	3	4	5	6	7	8	9	10	11	12	13
1989 WC Plan	0	9,126	0	2,850	Wutchumn	1,428	0	0	14,900	273	28,031	
1996 WC Plan	12,598	12,432	0	3,578	Wutchumn	0	0	0	24,000	775	39,235	
2025	10,860 *	10,860	0	3,578	Wutchumn	0	0	0	10,500	775	24,163	

Contractor's Agricultural Water Demands Maximum Productive Acres=

Timeframe	Crop Water Requirement (acre-feet)	District Irrig. Efficiency (%)	Effective Precip (acre-feet)	Reference Effective Precip (acre-ft)	Calculated Net Crop Water Req (acre-feet)	USBR Net Crop Water Req (acre-feet)	Average Irrigated Acres (acres)	Reference Irrigated Acres (acres)	Calculated FDR (AF/acre)	USBR FDR (AF/acre)	Conveyance Loss (acre-feet)	Total Ag Demand (acre-feet)
1	15	16	17	18	19	20	21	22	23	24	25	26
1989	26,400	75	5,007	1,950	28,524	38,996	10,435	9,749	2.73	4.00	474	28,998
1996	30,871	75	1,498	2,106	39,164	43,181	10,514	10,532	3.72	4.10	0	39,164
2025	34,276	85	2,103	2,103	37,850	37,850	10,514	10,514	3.60	3.60	0	37,850

Contractor's M&I Water Demands

Timeframe	Residential Water Demand				Nonresidential Water Demand				Loss			Total Unmet Demand (acre-feet)
	Population	Per Capita Demand (gpcd)	Total Demand (acre-feet)	Industrial (acre-feet)	Commercial/Instt (acre-feet)	Total Demand (acre-feet)	Unacc /Distr (acre-feet)	Ref Urban Per Capita Dmd (gpcd)	Calc Urban Per Capita Dmd (gpcd)	Total M&I Demand (acre-feet)	Ag+ M&I Dmd (acre-feet)	
1	28	29	30	31	32	33	34	35	36	37	38	39
1989			0			0	0			0	28,998	967
1996			0			0	0			0	39,164	-71
2025			0			0	0			0	37,850	13,687

Notes: 2025 - 10,860 AF represents 100% Class I and 40% Class II.

* Represents Maximum Contract Amount

Water supply and demand information is for a normal hydrologic year. Crop Water Requirement includes leaching req. and cultural water but not irrigation efficiency.

Information from contractor's water management plan or data submittal for historical years. USBR reference information for future years

Quality control check; information is either calculated by USBR staff, or from reference.

Agricultural and M&I Water Supply

KERN-TULARE WD

Contractor's Water Supply Sources and Quantities (acre-feet)

Timeframe	Surface Water Supply				Groundwater Supply				Total Supply			
	Reference Delivery	USBR Total Deliv/Max	SWP	Local	Local Source	Trsrfr/Rtrn /Recycle In	Trsrfr/ Out	District		Private	Safe Yield	Recharge
1	2	3	4	5	6	7	8	9	10	11	12	13
1989 WC Plan	16,552	9,230	0	15,768	Kern River	0	0	0	23,000	0	0	47,998
1996 WC Plan	40,000 *	2,829	0	26,922	Kern River	0	0	0	20,320	0	0	50,071
2025	40,000 *	40,000	0	0	Kern River	0	7,000	0	33,156	20,000	0	46,156

Maximum Productive Acres= 18,776

Contractor's Agricultural Water Demands

Timeframe	Crop Requirement (acre-feet)	District Irrig. Efficiency (%)	Effective Precip (acre-feet)	Reference Effective Precip (acre-ft)	Calculated Net Crop Water Req (acre-feet)	USBR Net Crop Water Req (acre-feet)	Average Irrigated Acres (acres)	Reference Irrigated Acres (acres)	Calculated FDR (AF/acre)	USBR FDR (AF/acre)	Conveyance Loss (acre-feet)	Total Ag Demand (acre-feet)
1989	37,054	75	1,549	2,416	47,340	42,273	12,477	12,078	3.79	3.50	360	47,700
1996	43,947	81	3,284	2,226	50,201	38,955	13,700	11,130	3.66	3.50	956	51,157
2025	41,177	85	3,301	3,301	44,561	44,561	16,504	16,504	2.70	2.70	956	45,517

Contractor's M&I Water Demands

Timeframe	Residential Water Demand			Nonresidential Water Demand			Loss			Total M&I Demand (acre-feet)	Total Ag+ M&I Dmd (acre-feet)	Unmet Demand (acre-feet)
	Population (ppcd)	Per Capita Demand (gpcd)	Total Demand (acre-feet)	Industrial (acre-feet)	Commi/ Instit (acre-feet)	Total Demand (acre-feet)	Unacc /Dist (acre-feet)	Ref Urban Per Capita Dmd (gpcd)	Urban Per Capita Dmd (gpcd)			
1	28	29	30	31	32	33	34	35	36	37	38	39
1989			0			0	0			0	47,700	-298
1996			0			0	0			0	51,157	1,086
2025			0			0	0			0	45,517	-639

Notes: In 2025, groundwater pumping assumed to be available in a normal year = 18,000 AF safe yield + 15,156 AF recharge; no normal year supply is available from the Kern River; and 7000 AF of intra-divisional transfers are assumed.

* Represents Maximum Contract Amount

Water supply and demand information is for a normal hydrologic year. Crop Water Requirement includes leaching req. and cultural water but not irrigation efficiency.

Information from contractor's water management plan or data submittal for historical years. USBR reference information for future years

Quality control check; information is either calculated by USBR staff, or from reference.

Agricultural and M&I Water Supply

LINDMORE ID

Timeframe	Contractor's Water Supply Sources and Quantities (acre-feet)						Groundwater Supply			Total Supply		
	Reference Delivery	USBR Total Deliv/Max	SWP	Local Source	Trsftr/Retrn /Recycle In	Trsftr/ Retrn /Out	District	Private	Safe Yield		Recharge	
1	2	3	4	5	6	7	8	9	10	11	12	13
1989 WC Plan	0	35,034	0	0	0	0	0	204	32,171		0	67,409
1996 WC Plan	46,383	45,760	0	0	7,643	6,400	87	87	35,753		4,048	78,795
2025	41,800 *	41,800	0	0	0	0	87	87	13,000		0	54,887

Maximum Productive Acres= 24,491

Contractor's Agricultural Water Demands

Timeframe	District	Crop Water Requirement (acre-feet)	Irrig. Efficiency (%)	Effective Precip (acre-feet)	Reference Effective Precip (acre-ft)	Calculated Net Crop Water Req (acre-feet)	USBR Net Crop Water Req (acre-feet)	Average Irrigated Acres (acres)	Reference Irrigated Acres (acres)	Calculated FDR (IAF/acre)	USBR FDR (IAF/acre)	Conveyance Loss (acre-feet)	Total Ag Demand (acre-feet)
1	15	16	17	18	19	20	21	22	23	24	25	26	26
1989	75	3,800	7,096	89,612	87,520	25,545	23,654	3.51	3.70	200	89,812		
1996	78	5,340	7,251	77,227	87,012	24,167	24,170	3.20	3.60	200	77,427		
2025	85	7,674	7,674	74,185	74,185	25,581	25,581	2.90	2.90	200	74,385		

Contractor's M&I Water Demands

Timeframe	Residential Water Demand				Nonresidential Water Demand				Loss				Total Unmet Demand (acre-feet)
	Population	Per Capita Demand (gpcd)	Industrial Demand (acre-feet)	Total Demand (acre-feet)	Commercial/Instit (acre-feet)	Total Demand (acre-feet)	Unacc/Distr (acre-feet)	Loss (acre-feet)	Ref Urban Per Capita Dmd (gpcd)	Urban Per Capita Dmd (gpcd)	Total M&I Demand (acre-feet)	Ag+ M&I Dmd (acre-feet)	
1	28	29	31	32	33	34	35	36	37	38	39	39	39
1989	28	29	31	32	33	34	35	36	37	38	39	39	39
1996	28	29	31	32	33	34	35	36	37	38	39	39	39
2025	28	29	31	32	33	34	35	36	37	38	39	39	39

Notes: 2025 - 41,800AF represents 100% Class I and 40% Class II.

* Represents Maximum Contract Amount

Water supply and demand information is for a normal hydrologic year. Crop Water Requirement includes leaching req. and cultural water but not irrigation efficiency.

Information from contractor's water management plan or data submitted for historical years. USBR reference information for future years

Quality control check; information is either calculated by USBR staff, or from reference.

Division: Friant

Water Needs Assessment

District:

Date: 6/21/2001

Agricultural and M&I Water Supply

LINDSAY-STATHMORE ID

Contractor's Water Supply Sources and Quantities (acre-feet)

Timeframe	Surface Water Supply				Groundwater Supply				Total Supply			
	Reference Delivery	USBR Total Defiv/Max	SWP	Local Source	Trsr/Rtrn /Recycle In	Trsr/ Out	District	Private Yield		Safe Recharge		
1	2	3	4	5	6	7	8	9	10	11	12	13
1989 WC Plan	0	21,450	0	5,703	Kaweah	0	0	0	8,500	0	0	35,653
1996 WC Plan	24,541	24,441	0	93	Kaweah	0	400	93	6,000	0	0	30,227
2025	27,500 *	27,500	0	4,018	Kaweah	0	4,000	93	5,600	0	0	33,211

Contractor's Agricultural Water Demands Maximum Productive Acres= 13,372

Timeframe	Crop Requirement (acre-feet)	District Irrig. Efficiency (%)	Effective Precip (acre-feet)	Reference Effective Precip (acre-ft)	Calculated Net Crop Water Req (acre-feet)	USBR Net Crop Water Req (acre-feet)	Average Irrigated Acres (acres)	Reference Irrigated Acres (acres)	Calculated FDR (LAF/acre)	USBR FDR (LAF/acre)	Conveyance Loss (acre-feet)	Total Ag Demand (acre-feet)
1989	35,647	75	8,912	2,546	35,647	48,378	12,731	12,731	2.80	3.80	0	35,647
1996	31,115	75	8,903	2,595	29,616	49,301	12,700	12,974	2.33	3.80	490	30,106
2025	39,830	85	2,509	2,509	43,908	43,908	12,545	12,545	3.50	3.50	490	44,398

Contractor's M&I Water Demands

Timeframe	Residential Water Demand				Nonresidential Water Demand				Loss	Ref Urban Per Capita Dmd (gpcd)	Total M&I Demand (acre-feet)	Total Ag+ M&I Dmd (acre-feet)	Unmet Demand (acre-feet)
	Population	Per Capita Demand (gpcd)	Total Demand (acre-feet)	Industrial (acre-feet)	Commercial/Insttit (acre-feet)	Total Demand (acre-feet)	Urban Per Capita Dmd (gpcd)	Urban Per Capita Dmd (gpcd)					
1	28	29	30	31	32	33	34	35	36	37	38	39	-6
1989													35,647
1996													30,106
2025													44,398

Notes: 1989 - ag water demand calculated using USBR FDR, acreage and effective precipitation data. 2025 - Transfer Out to Tulare ID

* Represents Maximum Contract Amount

Water supply and demand information is for a normal hydrologic year. Crop Water Requirement includes leaching req. and cultural water but not irrigation efficiency.

Information from contractor's water management plan or data submitted for historical years. USBR reference information for future years

Quality control check: information is either calculated by USBR staff, or from reference.

Timeframe	Surface Water Supply				Groundwater Supply				Total Supply			
	Reference Delivery	USBR Total Dely/Max	SWP	Local Source	Trsf/Retn /Recycle In	Trsf/ Ont	District Private	Safe Yield Recharge				
1	2	3	4	5	6	7	8	9	10	11	12	13
1989 WC Plan	0	63,922	0	87,851	Lower Tule	0	0	0	41,200	44,802	148,171	
1996 WC Plan	195,219	208,798	0	83,744	Lower Tul	0	23,118	0	209,829	49,479	429,774	
2025	187,502	187,502	0	70,000	Lower Tul	2,300	0	0	43,219	49,479	253,542	

Contractor's Agricultural Water Demands Maximum Productive Acres= 85,925

Timeframe	Crop Requirement (acre-feet)	District Irrig. Efficiency (%)	Effective Precip (acre-feet)	Reference Effective Precip (acre-ft)	Calculated Net Crop Water Req (acre-feet)	USBR Net Crop Water Req (acre-feet)	Average Irrigated Acres (acres)	Reference Irrigated Acres (acres)	Calculated FDR (AF/acre)	USBR FDR (AF/acre)	Conveyance Loss (acre-feet)	Total Ag Demand (acre-feet)
1989	156,577	70	9,352	32,017	210,321	256,138	77,934	80,043	2.70	3.20	730	211,051
1996	346,456	78	14,409	35,156	425,701	281,248	110,875	87,890	3.84	3.20	730	426,431
2025	250,021	85	33,262	44,350	255,011	299,360	110,874	110,874	2.30	2.70	730	255,741

Contractor's M&I Water Demands

Timeframe	Residential Water Demand				Nonresidential Water Demand				Loss				Total Unmet Demand (acre-feet)
	Population	Per Capita Demand (gpcd)	Total Demand (acre-feet)	Comm/Inst (acre-feet)	Industrial (acre-feet)	Total Demand (acre-feet)	Unacc/Distr (acre-feet)	Ref Urban Per Capita Dmd (gpcd)	Calc Urban Per Capita Dmd (gpcd)	Total M&I Demand (acre-feet)	Ag+ M&I Dmd (acre-feet)	Total (acre-feet)	
1	28	29	30	31	32	33	34	35	36	37	38	39	
1989			0	0	0	0	0	0	0	0	211,051	62,880	
1996			0	0	0	0	0	0	0	0	426,431	-3,343	
2025			0	0	0	0	0	0	0	0	255,741	2,199	

Notes: In 2025, CVP water = 31,102 AF XValley, 61,200 AF 100% Class I & 95,200 AF 40% Class II supply. Calculated 730 ac-ft evap from open system; seepage accounted in recharge. Transfer in from Terra Bella ID. GW=22,100 AF safe yield + 21,119 AF recharge.

* Represents Maximum Contract Amount

Water supply and demand information is for a normal hydrologic year. Crop Water Requirement includes leaching req. and cultural water but not irrigation efficiency.

Information from contractor's water management plan or data submittal for historical years. USBR reference information for future years

Quality control check. Information is either calculated by USBR staff, or from reference.

Division: Friant

Water Needs Assessment

District

Date: 6/21/2001

Agricultural and M&I Water Supply

MADERA ID

Contractor's Water Supply Sources and Quantities (acre-feet)

Timeframe	Surface Water Supply				Groundwater Supply				Total Supply			
	Reference Delivery	USBR Total Deliv/Max	SWP	Local Source	Trstr/Rtrn /Recycle In	Trstr/ Rtrn /Recycle Out	District	Private		Safe Yield	Recharge	
1	2	3	4	5	6	7	8	9	10	11	12	13
1989 WC Plan	0	84,120	0	21,950	water rights	5,150	0	0	204,461	39,498	276,183	
1996 WC Plan	246,640	223,775	0	41,889	water rights	0	19,000	237,374	66,779	417,259		
2025	183,400 *	183,400	0	41,889	water rights	0	0	113,430	66,779	271,940		

Maximum Productive Acres= 112,207

Contractor's Agricultural Water Demands

Timeframe	Crop Water Requirement (acre-feet)	District Irrig. Efficiency (%)	Effective Precip (acre-feet)	Reference Effective Precip (acre-ft)	Calculated Net Crop Water Req (acre-feet)	USBR Net Crop Water Req (acre-feet)	Average Irrigated Acres (acres)	Reference Irrigated Acres (acres)	Calculated FDR (AF/acre)	USBR FDR (AF/acre)	Conveyance Loss (acre-feet)	Total Ag Demand (acre-feet)
1989	235,232	75	6,756	38,110	304,635	247,712	94,322	95,274	3.23	2.60	1,855	306,490
1996	387,435	78	22,983	38,667	467,246	261,001	107,658	96,667	4.34	2.70	25,080	492,326
2025	280,987	85	43,063	43,063	279,911	279,911	107,658	107,658	2.60	2.60	25,080	304,991

Contractor's M&I Water Demands

Timeframe	Residential Water Demand				Nonresidential Water Demand				Loss				Total M&I Demand (acre-feet)	Total Ag+M&I Dmd (acre-feet)	Unmet Demand (acre-feet)
	Population	Per Capita Demand (gpcd)	Total Demand (acre-feet)	Comm/Instit (acre-feet)	Industrial (acre-feet)	Total Demand (acre-feet)	Unacc /Dist (acre-feet)	Ref Urban Per Capita Dmd (gpcd)	Calc Urban Per Capita Dmd (gpcd)	Total M&I Demand (acre-feet)	Conveyance Loss (acre-feet)	Ag+M&I Dmd (acre-feet)			
1	28	29	30	31	32	33	34	35	36	37	38	39	38	38	39
1989			0	0	0	0	0	0	0	0	0	306,490	30,307		
1996			0	0	0	0	0	0	0	0	0	492,326	75,067		
2025			0	0	0	0	0	0	0	0	0	304,991	33,051		

Notes: In 2025, CVP supply = 24 TAF Hidden Unit, 85 TAF Friant Class I and 74.4 TAF 40% Friant Class II. Groundwater assumed to be available = 49 TAF safe yield + 64.43 TAF recharge.

- * Represents Maximum Contract Amount
- Water supply and demand information is for a normal hydrologic year. Crop Water Requirement includes leaching req. and cultural water but not irrigation efficiency.
- Information from contractor's water management plan or data submittal for historical years. USBR reference information for future years
- Quality control check; information is either calculated by USBR staff, or from reference.

Agricultural and M&I Water Supply

District: ORANGE COVE ID

Contractor's Water Supply Sources and Quantities (acre-feet)

Timeframe	Surface Water Supply				Groundwater Supply				Total Supply			
	Reference Delivery	USBR Total Deliv/Max	SWP	Local Source	Trsftr/Rtrtn /Recycle In	Trsftr/ Out	District Private	Safe Yield Recharge				
1989 WC Plan	2	3	4	5	6	7	8	9	10	11	12	13
	0	37,338	0	0	0	0	3,900	0	57,000	0	0	90,438
1996 WC Plan	34,822	34,793	0	0	0	184	1,500	0	53,000	0	0	86,477
2025	39,200 *	39,200	0	0	0	0	0	0	12,800	0	0	52,000

Contractor's Agricultural Water Demands Maximum Productive Acres= 16,690

Timeframe	Crop Water Requirement (acre-feet)	District Irrig. Efficiency (%)	Effective Precip (acre-feet)	Reference Effective Precip (acre-ft)	Calculated Net Crop Water Req (acre-feet)	USBR Net Crop Water Req (acre-feet)	Average Irrigated Acres (acres)	Reference Irrigated Acres (acres)	Calculated FDR (AF/acre)	USBR FDR (AF/acre)	Conveyance Loss (acre-feet)	Total Ag Demand (acre-feet)
1989	77,909	75	11,940	7,156	87,959	88,260	26,788	23,854	3.28	3.70	2,614	90,573
1996	78,344	75	13,246	86,797	86,797	28,000	28,000	3.10	3.10	0	0	86,797
2025	77,485	85	7,487	7,487	82,352	82,352	24,955	24,955	3.30	3.30	0	82,352

Contractor's M&I Water Demands

Timeframe	Residential Water Demand				Non-residential Water Demand				Loss		Total	Unmet Demand	
	Population	Per Capita Demand (gpcd)	Total Demand (acre-feet)	Industrial Demand (acre-feet)	Commercial/Instit Demand (acre-feet)	Total Demand (acre-feet)	Unace/Distr (acre-feet)	Ref Urban Per Capita Dmd (gpcd)	Per Capita Dmd (gpcd)	Calc Urban Per Capita Dmd (gpcd)			Total M&I Demand (acre-feet)
1989	28	29	30	31	32	33	34	35	36	37	38	39	135
1996													320
2025													30,352

Notes: 1989 - Private pumping estimated to be 57,000 AF; 1996 - Private pumping estimated to be 53,000 AF

* Represents Maximum Contract Amount

Water supply and demand information is for a normal hydrologic year. Crop Water Requirement includes leaching req. and cultural water but not irrigation efficiency. Information from contractor's water management plan or data submitted for historical years. USBR reference information for future years. Quality control check; information is either calculated by USBR staff, or from reference.

Agricultural and M&I Water Supply

District:

PIXLEY ID

Contractor's Water Supply Sources and Quantities (acre-feet)

Timeframe	Surface Water Supply			Groundwater Supply			Total Supply					
	Reference Delivery	USBR Total Deliv/Max	SWP	Local	SWP	Safe Yield						
1	2	3	4	5	6	7	8	9	10	11	12	13
1989 WC Plan	5,289	12,189	0	0	0	0	0	0	132,000	0	0	144,189
1996 WC Plan	31,102 *	31,102	0	17,199	Natural Ru	20,150	0	0	232,455	21,461	21,461	279,445
2025	31,102 *	31,102	0	17,199	Natural Ru	19,900	0	0	26,621	21,461	21,461	73,361

Contractor's Agricultural Water Demands

Maximum Productive Acres= 53,245

Timeframe	Crop Requirement (acre-feet)	District Irrig. Efficiency (%)	Effective Precip (acre-feet)	Reference Effective Precip (acre-ft)	Calculated Net Crop Water Req (acre-feet)	USBR Net Crop Water Req (acre-feet)	Average Irrigated Acres (acres)	Reference Irrigated Acres (acres)	Calculated FDR (AF/acre)	USBR FDR (AF/acre)	Conveyance Loss (acre-feet)	Total Ag Demand (acre-feet)
1989	115,426	75	8,942	17,685	142,112	141,478	44,410	44,212	3.20	3.20	1,900	144,012
1996	212,527	76	3,944	24,290	274,451	182,178	67,419	60,726	4.07	3.00	1,900	276,351
2025	163,491	85	20,226	26,968	168,547	155,064	67,419	67,419	2.50	2.30	1,900	170,447

Contractor's M&I Water Demands

Timeframe	Residential Water Demand			Nonresidential Water Demand			Loss	Total Demand (acre-feet)	Per Capita Demand (gpcd)	Urban Per Capita Dmd (gpcd)	Total M&I Demand (acre-feet)	Total M&I Demand (acre-feet)	Unmet Demand (acre-feet)
	Population	Per Capita Demand (gpcd)	Total Demand (acre-feet)	Industrial (acre-feet)	Commercial/Instit (acre-feet)	Total Demand (acre-feet)							
1	28	29	30	31	32	33	34	35	36	37	38	39	39
1989						0	0	0	0	0	144,012	-177	
1996						0	0	0	0	0	276,351	-3,094	
2025						0	0	0	0	0	170,447	97,086	

Notes: 1989 - ag water demand calculated using USBR FDR; gw pumping assumed to meet remaining demand after surface water utilized. 2025 - Transfer In from Poterville ID. GW pumping = 11,200 AF(2x Delano-Earlimart ID Safe Yield) + 15,421 AF recharge.

* Represents Maximum Contract Amount

Water supply and demand information is for a normal hydrologic year. Crop Water Requirement includes leaching req. and cultural water but not irrigation efficiency.

Information from contractor's water management plan or data submitted for historical years. USBR reference information for future years

Quality control check; information is either calculated by USBR staff, or from reference.

Division: Friant

Water Needs Assessment

District

Date: 6/21/2001

Agricultural and M&I Water Supply

PORTERVILLE ID

Contractor's Water Supply Sources and Quantities (acre-feet)

Timeframe	Surface Water Supply				Groundwater Supply				Total Supply			
	Reference Delivery	USBR Total Deliv/Max	SWP	Local	Local Source	Irsfr/Rtrn /Recycle In	Irsfr/ Out	District		Private	Safe Yield	Recharge
1	2	3	4	5	6	7	8	9	10	11	12	13
1989 WC Plan	0	15,680	0	2,609	Tule R/oth	0	0	0	26,000	3,120	41,169	
1996 WC Plan	13,786	24,514	0	27,711	Tule R/oth	0	19,900	0	37,000	21,571	47,754	
2025	28,000 *	28,000	0	27,711	Tule R/oth	0	23,900	0	32,480	21,571	42,720	

Maximum Productive Acres= 14,216

Contractor's Agricultural Water Demands

Timeframe	District	Crop Water Requirement (acre-feet)	Irrig. Efficiency (%)	Effective Precip (acre-feet)	Reference Effective Precip (acre-ft)	Calculated Net Crop Water Req (acre-feet)	USBR Net Crop Water Req (acre-feet)	Average Irrigated Acres (acres)	Reference Irrigated Acres (acres)	Calculated FDR (AF/acre)	USBR FDR (AF/acre)	Conveyance Loss (acre-feet)	Total Ag Demand (acre-feet)
1	15	16	17	18	19	20	21	22	23	24	25	26	
1989	75	3,860	5,146	41,488	43,741	12,965	12,865	3.20	3.40	0	41,488		
1996	75	1,947	3,997	47,839	45,302	13,250	13,324	3.61	3.40	0	47,839		
2025	85	5,285	5,285	42,278	42,278	13,212	13,212	3.20	3.20	0	42,278		

Contractor's M&I Water Demands

Timeframe	Residential Water Demand			Nonresidential Water Demand			Loss			Total M&I Demand (acre-feet)	Total Ag+ M&I Dmd (acre-feet)	Unmet Demand (acre-feet)
	Population	Per Capita Demand (gpcd)	Demand (acre-feet)	Industrial Demand (acre-feet)	Comun/ Instit (acre-feet)	Total Demand (acre-feet)	Unacc /Distr (acre-feet)	Ref Urban Per Capita Dmd (gpcd)	Per Capita Dmd (gpcd)			
1	28	29	30	31	32	33	34	35	36	37	38	39
1989	28	29	30	31	32	33	34	35	36	37	38	39
1996												
2025												

Notes: 1989 - ag demand calculated assuming USBR FDR.

In 2025, CVP supply = 16 TAF Friant Class I + 12 TAF 40% Friant Class II; Transfer Out = 19.9 TAF to Pixley ID + 4 TAF intra-divisional; GW available for pumping = 16.1 TAF safe yield + 16.38 TAF recharge.

* Represents Maximum Contract Amount

Water supply and demand information is for a normal hydrologic year. Crop Water Requirement includes leaching req. and cultural water but not irrigation efficiency.

Information from contractor's water management plan or data submittal for historical years. USBR reference information for future years

Quality control check; information is either calculated by USBR staff, or from reference.

Agricultural and M&I Water Supply

RAG GULCH WD

Timeframe	Surface Water Supply						Groundwater Supply					
	Reference Delivery	USBR Total Deliv/Max	SWP	Local Source	Trsf/Retn /Recycle In	Trsf/ Out	District	Private	Safe Yield	Recharge	Total Supply	
1	2	3	4	5	6	7	8	9	10	11	12	13
1989 WC Plan	13,384	2,671	0	0	0	9,507	0	0	2,000	0	0	14,178
1996 WC Plan	13,300 *	0	0	12,330	Kern River	0	0	0	6,277	0	0	20,607
2025	13,300 *	13,300	0	0	0	0	0	0	10,717	10,000	0	14,017

Contractor's Agricultural Water Demands Maximum Productive Acres= 5,391

Timeframe	Crop Requirement (acre-feet)	District Irrig. Efficiency (%)	Effective Precip (acre-feet)	Reference Effective Precip (acre-ft)	Calculated Net Crop Water Req (acre-feet)	USBR Nat Crop Water Req (acre-feet)	Average Irrigated Acres (acres)	Reference Irrigated Acres (acres)	Calculated FDR (LAF/acre)	USBR FDR (LAF/acre)	Conveyance Loss (acre-feet)	Total Ag Demand (acre-feet)
1	15	16	17	18	19	20	21	22	23	24	25	26
1989	11,079	75	551	1,332	14,037	11,547	4,441	4,441	3.16	2.60	0	14,037
1996	14,968	71	728	1,551	20,056	14,996	5,171	5,171	3.88	2.90	247	20,303
2025	14,077	85	1,742	1,742	14,513	14,513	5,805	5,805	2.50	2.50	247	14,760

Contractor's M&I Water Demands

Timeframe	Residential Water Demand				Nonresidential Water Demand				Loss		Total M&I Demand (acre-feet)	Total Ag+ M&I Dmd (acre-feet)	Unmet Demand (acre-feet)	
	Population	Per Capita Demand (gpcd)	Industrial Demand (acre-feet)	Comm/Instit Demand (acre-feet)	Industrial Demand (acre-feet)	Comm/Instit Demand (acre-feet)	Unacc /Distr (acre-feet)	Unacc /Distr (acre-feet)	Ref Urban Per Capita Dmd (gpcd)	Calc Urban Per Capita Dmd (gpcd)				
1	28	29	30	31	32	33	34	35	36	37	38	39	40	41
1989														
1996														
2025														

Notes: 2025 - No normal year Kern River supply available; groundwater assumed to be available = 2,000 AF safe yield + 8,717 AF recharge.

* Represents Maximum Contract Amount

Water supply and demand information is for a normal hydrologic year. Crop Water Requirement includes leaching req. and cultural water but not irrigation efficiency.

Information from contractor's water management plan or data submittal for historical years. USBR reference information for future years

Quality control check; information is either calculated by USBR staff, or from reference.

Agricultural and M&I Water Supply

SAUCELITO ID

Contractor's Water Supply Sources and Quantities (acre-feet)

Timeframe	Surface Water Supply				Groundwater Supply				Total Supply			
	Reference Delivery	USBR Total Deliv/Max	SWP	Local	Local Source	Trsftr/Retrn /Recycle In	Trsftr/ Retrn /Recycle Out	District		Private	Safe Yield	Recharge
1	2	3	4	5	6	7	8	9	10	11	12	13
1989 WC Plan	0	25,837	0	0	0	4,142	2,729	0	19,371	33		46,588
1996 WC Plan	47,369	49,975	0	0	0	0	0	0	16,181	9,989		56,167
2025	34,320 *	34,420	0	0	0	0	0	0	20,167	9,989		44,598

Maximum Productive Acres= 17,304

Contractor's Agricultural Water Demands

Timeframe	Crop Water Requirement (acre-foot)	District Irrig. Efficiency (%)	Effective Precip (acre-foot)	Reference Effective Precip (acre-ft)	Calculated Net Crop Water Req (acre-foot)	USBR Net Crop Water Req (acre-foot)	Average Irrigated Acres (acres)	Reference Irrigated Acres (acres)	Calculated FDR (AF/acre)	USBR FDR (AF/acre)	Conveyance Loss (acre-foot)	Total Ag Demand (acre-foot)
1989	41,205	80	3,900	7,483	46,631	50,512	17,730	18,708	2.63	2.70	500	47,131
1996	47,511	80	3,224	7,509	55,359	56,319	17,702	18,773	3.13	3.00	1,000	56,359
2025	48,946	85	5,311	7,081	51,335	46,025	17,702	17,702	2.90	2.60	1,100	52,435

Contractor's M&I Water Demands

Timeframe	Residential Water Demand				Nonresidential Water Demand				Loss	Total Demand (acre-foot)	Unmet Demand (acre-foot)	
	Population	Per Capita Demand (gpcd)	Industrial (acre-foot)	Commercial/Instt (acre-foot)	Total Demand (acre-foot)	Unacc/Distr (acre-foot)	Ref Urban Per Capita Dmd (gpcd)	Calc Urban Per Capita Dmd (gpcd)				Total MCI Demand (acre-foot)
1	28	29	30	31	32	33	34	35	36	37	38	38
1989			0	0	0	0	0	0	0	0	47,131	543
1996			0	0	0	0	0	0	0	0	56,359	192
2025			0	0	0	0	0	0	0	0	52,435	7,837

Notes: Conveyance Loss is assumed to be 2% of surface water supply based on WC Plan, pg 3-41. In 2025, CVP supply = 21,200 AF Friant Class I + 13,120 AF 40% Friant Class II + 100 AF Tulare Subcontract; GW = 13,900 AF safe yield + 6,267 AF recharge.

* Represents Maximum Contract Amount

Water supply and demand information is for a normal hydrologic year. Crop Water Requirement includes leaching req. and cultural water but not irrigation efficiency.

Information from contractor's water management plan or data submittal for historical years. USBR reference information for future years

Quality control check; information is either calculated by USBR staff, or from reference.

Agricultural and M&I Water Supply

SOUTHERN SAN JOAQUIN MUD

Contractor's Water Supply Sources and Quantities (acre-feet)

Timeframe	Surface Water Supply				Groundwater Supply				Total Supply			
	Reference Delivery	USBR Total Dely/Max	SWP	Local	Local Source	Trsr/Retrn /Recycle In	Trsr/ Out	District		Private	Safe Yield	Recharge
1	2	3	4	5	6	7	8	9	10	11	12	13
1989 WC Plan	0	96,293	0	0	0	0	0	0	40,000	0	0	136,293
1996 WC Plan	0	124,230	0	0	0	0	0	0	74,887	15,567	15,567	183,550
2025	0	117,000	0	0	0	0	2,500	0	21,237	15,567	15,567	120,170

Maximum Productive Acres= 48,454

Contractor's Agricultural Water Demands

Timeframe	Crop Requirement (acre-foot)	District Irrig. Efficiency (%)	Effective Precip (acre-foot)	Reference Effective Precip (acre-ft)	Calculated Net Crop Water Req (acre-foot)	USBR Net Crop Water Req (acre-foot)	Average Irrigated Acres (acres)	Reference Irrigated Acres (acres)	Calculated FDR (LAF/acre)	USBR FDR (AF/acre)	Conveyance Loss (acre-foot)	Total Ag Demand (acre-foot)
1	15	16	17	18	19	20	21	22	23	24	25	26
1989	105,957	75	5,636	14,270	133,761	147,458	46,973	47,567	2.85	3.10	1,900	135,661
1996	146,435	78	4,187	14,711	182,369	152,009	49,045	49,035	3.72	3.10	2,500	184,869
2025	135,609	85	14,714	14,714	142,231	142,231	49,045	49,045	2.90	2.90	2,900	145,131

Contractor's M&I Water Demands

Timeframe	Residential Water Demand				Nonresidential Water Demand				Loss	Total	Unmet Demand	
	Population	Per Capita Demand (gpcd)	Industrial Demand (acre-foot)	Commer/ Instit (acre-foot)	Industrial Demand (acre-foot)	Commer/ Instit (acre-foot)	Total Demand (acre-foot)	Unacc /Distr (acre-foot)				
1	28	29	30	31	32	33	34	35	36	37	38	39
1989											135,661	-632
1996											184,869	1,319
2025											145,131	24,961

Notes: Conveyance loss assumed to be 2% of surface water supply based on WC Plan, pg 3-41. In 2025, CVP supply = 97,000 AF 100% Class 1 + 20,000 AF 40% Class II. Transfer Out to city of Delano M&I use. GW available = 15,800 AF safe yield + 5,437 AF recharge.

* Represents Maximum Contract Amount

Water supply and demand information is for a normal hydrologic year. Crop Water Requirement includes leaching req. and cultural water but not irrigation efficiency.

Information from contractor's water management plan or data submittal for historical years. USBR reference information for future years

Quality control check; information is either calculated by USBR staff, or from reference.

Agricultural and M&I Water Supply

STONE CORRAL ID

Contractor's Water Supply Sources and Quantities (acre-feet)

Timeframe	Surface Water Supply				Groundwater Supply				Total Supply			
	Reference Delivery	USBR Total Deliv/Max	SWP	Local Source	Trsftr/Rtrn /Recycle In	Trsftr/ Out	District Private	Safe Yield Recharge				
1	2	3	4	5	6	7	8	9	10	11	12	13
1989 WC Plan	0	10,001	0	0	0	0	0	0	6,800	0	0	16,801
1996 WC Plan	8,394	8,974	0	0	0	0	0	0	9,626	703	0	17,897
2025	10,000 *	10,950	0	0	0	0	0	0	200	703	0	10,447

Contractor's Agricultural Water Demands Maximum Productive Acres=

Timeframe	Crop Water Requirement (acre-feet)	District Irrig. Efficiency (%)	Effective Precip (acre-feet)	Reference Effective Precip (acre-ft)	Calculated Net Crop Water Req (acre-feet)	USBR Net Crop Water Req (acre-feet)	Average Irrigated Acres (acres)	Reference Irrigated Acres (acres)	Calculated FDR (AF/acre)	FDR (AF/acre)	USBR FDR (AF/acre)	Conveyance Loss (acre-feet)	Total Ag Demand (acre-feet)
1	15	16	17	18	19	20	21	22	23	24	25	26	26
1989	15,116	80	1,995	1,666	16,401	18,884	5,781	5,554	2.84	3.40	502	16,903	
1996	15,856	83	1,206	1,628	17,651	20,084	5,163	5,428	3.42	3.70	0	17,651	
2025	16,031	85	1,549	1,549	17,038	17,038	5,163	5,163	3.30	3.30	0	17,038	

Contractor's M&I Water Demands

Timeframe	Residential Water Demand				Nonresidential Water Demand				Loss				Total Unmet Demand (acre-feet)
	Population	Per Capita Demand (gpcd)	Total Demand (acre-feet)	Total Demand (acre-feet)	Industrial	Commer/Instit	Total Demand (acre-feet)	Total Demand (acre-feet)	Unase /Distr	Ref Urban Per Capita Dmd (gpcd)	Calc Urban Per Capita Dmd (gpcd)	Total M&I Demand (acre-feet)	
1	28	29	30	31	32	33	34	35	36	37	38	39	39
1989			0	0	0	0	0	0	0	0	0	16,903	102
1996			0	0	0	0	0	0	0	0	0	17,651	-246
2025			0	0	0	0	0	0	0	0	0	17,038	6,591

Notes: In 2025, CVP supply = 10,000 AF 100% Friant Class I + 950 AF Tulare County Subcontract.

* Represents Maximum Contract Amount

Water supply and demand information is for a normal hydrologic year. Crop Water Requirement includes leaching req. and cultural water but not irrigation efficiency.

Information from contractor's water management plan or data submitted for historical years. USBR reference information for future years

Quality control check; information is either calculated by USBR staff, or from reference.

Timeframe	Surface Water Supply					Groundwater Supply					Total Supply	
	Reference Delivery	USBR Total Deliv/Max	SWP	Local Source	Trsf/Retn /Recycle In	Trsf/Retn /Recycle Out	District	Private	Safe Yield	Recharge		
1	2	3	4	5	6	7	8	9	10	11	12	13
1989 WC Plan	0	7,350	0	0	0	485	1,411	0	0	0	0	6,424
1996 WC Plan	6,701	7,500	0	0	0	0	0	0	0	831	831	6,669
2025	7,500 *	7,500	0	0	0	0	0	0	453	831	831	7,122

Maximum Productive Acres= 3,186

Timeframe	Contractor's Agricultural Water Demands											
	Crop Water Requirement (acre-feet)	District Irrig. Efficiency (%)	Effective Precip (acre-feet)	Reference Effective Precip (acre-ft)	Calculated Net Crop Water Req (acre-feet)	USBR Net Crop Water Req (acre-feet)	Average Irrigated Acres (acres)	Reference Irrigated Acres (acres)	Calculated FDR (AF/acre)	USBRR FDR (AF/acre)	Conveyance Loss (acre-feet)	Total Ag Demand (acre-feet)
1	15	16	17	18	19	20	21	22	23	24	25	26
1989	7,769	75	422	671	9,796	12,745	3,281	3,354	2.99	3.80	12	9,808
1996	7,907	75	1,726	548	8,241	11,226	3,128	2,738	2.63	4.10	12	8,253
2025	10,463	85	696	696	11,491	11,491	3,482	3,482	3.30	3.30	12	11,503

Contractor's M&I Water Demands

Timeframe	Residential Water Demand				Nonresidential Water Demand				Loss	Total	Unmet Demand	
	Population	Per Capita Demand (gpd)	Total Demand (acre-feet)	Industrial Demand (acre-feet)	Comm/Instt Demand (acre-feet)	Total Demand (acre-feet)	Unacc /Distr (acre-feet)					
1	28	29	30	31	32	33	34	35	36	37	38	39
1989						0	0	0	0	0	9,808	3,384
1996						0	0	0	0	0	8,253	1,584
2025						0	0	0	0	0	11,503	4,381

Notes: In 2025, CVP supply = 7,500 AF 100% Friant Class I supply. GW available for pumping = 400 AF safe yield + 53 AF recharge.
 * Represents Maximum Contract Amount
 Water supply and demand information is for a normal hydrologic year. Crop Water Requirement includes leaching req. and cultural water but not irrigation efficiency.
 Information from contractor's water management plan or data submitted for historical years. USBR reference information for future years
 Quality control check: information is either calculated by USBR staff, or from reference.

Agricultural and M&I Water Supply

TERRA BELLA ID

Contractor's Water Supply Sources and Quantities (acre-feet)

Timeframe	Surface Water Supply				Groundwater Supply				Total Supply			
	Reference Delivery	USBR Total Deltv/Max	SWP	Local	Local Source	Trnsfr/Recycle In	Trnsfr/Out	District		Private	Safe Yield	Recharge
1	2	3	4	5	6	7	8	9	10	11	12	13
1989 WC Plan	0	28,872	0	0	0	0	5,500	331	0	0	0	23,703
1996 WC Plan	19,866	27,892	0	0	0	1,854	9,900	847	0	0	0	20,693
2025	29,000 *	29,000	0	0	0	0	2,300	2,200	0	0	0	28,900

Contractor's Agricultural Water Demands

Maximum Productive Acres= 12,178

Timeframe	District Irrig. Efficiency (%)	Crop Water Requirement (acre-feet)	Reference Effective Precip (acre-ft)	Calculated Net Crop Water Req (acre-feet)	USBR Net Crop Water Req (acre-feet)	Average Irrigated Acres	Reference Irrigated Acres	Calculated FUR (AF/acre)	FUR (AF/acre)	Conveyance Loss (acre-feet)	Total Ag Demand (acre-feet)
1	75	26,477	1,158	33,759	43,352	11,165	11,116	3.02	3.90	474	34,233
1989	75	28,794	1,321	36,631	44,436	10,068	10,838	3.64	4.10	0	36,631
1996	85	39,576	2,428	43,704	43,704	12,140	12,140	3.60	3.60	0	43,704
2025											

Contractor's M&I Water Demands

Timeframe	Residential Water Demand				Nonresidential Water Demand			Loss			Total M&I Demand (acre-feet)	Total Unmet Demand (acre-feet)
	Population	Per Capita Demand (gpcd)	Total Demand (acre-feet)	Industrial Demand (acre-feet)	Comm/Instt Demand (acre-feet)	Total Demand (acre-feet)	Unacc/Distr (acre-feet)	Conveyance Loss (acre-feet)	Ref Urban Per Capita Dmd (gpcd)	Ag+ M&I Dmd (acre-feet)		
1	28	29	30	31	32	33	34	35	36	37	38	39
1989						0	0	0	0	0	34,233	10,530
1996						0	0	0	0	0	36,631	15,938
2025						0	0	0	0	0	43,704	14,804

Notes: In 2025, CVP supply = 29 TAF 100% Friant Class I supply. Transfer Out to Lower Tule River ID.

* Represents Maximum Contract Amount

Water supply and demand information is for a normal hydrologic year. Crop Water Requirement includes leaching req. and cultural water but not irrigation efficiency.

Information from contractor's water management plan or data submitted for historical years. USBR reference information for future years

Quality control check; information is either calculated by USBR staff, or from reference.

Agricultural and M&I Water Supply

TULARE ID

Contractor's Water Supply Sources and Quantities (acre-feet)

Timeframe	Surface Water Supply				Groundwater Supply				Total Supply			
	Reference Delivery	USBR Total Deliv/Max	SWP	Local Source	Trsf-/Rtnm /Recycle In	Trsf-/Rtnm /Recycle Out	District Private	Safe Yield Recharge				
1	2	3	4	5	6	7	8	9	10	11	12	13
1989 WC Plan	0	27,212	0	29,636	Kaweah R.	5,000	0	0	184,000	47,000	198,848	
1996 WC Plan	112,753	108,841	0	160,841	Kaweah R.	0	0	0	42,005	133,288	178,399	
2025	86,400 *	86,400	0	50,000	Kaweah R.	4,000	16,000	0	203,173	133,288	194,285	

Contractor's Agricultural Water Demands Maximum Productive Acres= 62,520

Timeframe	Crop Requirement (acre-feet)	District Irrig. Efficiency (%)	Effective Precip (acre-feet)	Reference Effective Precip (acre-ft)	Calculated Net Crop Water Req (acre-feet)	USBR Net Crop Water Req (acre-feet)	Average Irrigated Acres (acres)	Reference Irrigated Acres (acres)	Calculated FDR (AF/acre)	USBR FDR (AF/acre)	Conveyance Loss (acre-feet)	Total Ag Demand (acre-feet)
1	15	16	17	18	19	20	21	22	23	24	25	26
1989	159,220	75	14,208	35,521	193,349	191,811	70,351	71,041	2.75	2.70	5,685	199,034
1996	190,850	75	37,792	33,308	204,077	179,861	75,582	66,615	2.70	2.70	2,975	207,052
2025	184,668	85	22,072	36,787	191,289	183,933	73,573	73,573	2.60	2.50	2,975	194,264

Contractor's M&I Water Demands

Timeframe	Residential Water Demand				Nonresidential Water Demand				Loss				Total Unmet Demand (acre-feet)
	Population	Per Capita Demand (gpcd)	Total Demand (acre-feet)	Industrial (acre-feet)	Comm/Instit (acre-feet)	Total Demand (acre-feet)	Unace /Dist (acre-feet)	Ref Urban Per Capita Dmd (gpcd)	Calc Urban Per Capita Dmd (gpcd)	Total MCI Demand (acre-feet)	Ag+ MCI Dmd (acre-feet)	Total Demand (acre-feet)	
1	28	28	30	31	32	33	34	35	36	37	38	39	
1989			0			0	0			0	199,034	186	
1996			0			0	0			0	207,052	28,653	
2025			0			0	0			0	194,264	-21	

Notes: In 1989, Eff Precip = USBR number. In 2025, CVP supply = 30,000 AF 100% Class I + 56,400 AF 40% Class II; Kaweah River supply = LT avg. Transfers: In from Lindsay-Strathmore ID; Out intra-divisional. GW = 89,500 AF safe yield + 113,673 AF recharge.

* Represents Maximum Contract Amount

Water supply and demand information is for a normal hydrologic year. Crop Water Requirement includes leaching req. and cultural water but not irrigation efficiency.

Information from contractor's water management plan or data submitted for historical years. USBR reference information for future years

Quality control check; information is either calculated by USBR staff, or from reference.