
SAN LUIS UNIT

FINAL ENVIRONMENTAL ASSESSMENT

INTERIM RENEWAL CONTRACT 2010-2013

Appendix A
Draft Interim Renewal Contract

February 2010

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF RECLAMATION
Central Valley Project, California

INTERIM RENEWAL CONTRACT BETWEEN THE UNITED STATES
AND
WESTLANDS WATER DISTRICT
PROVIDING FOR PROJECT WATER SERVICE

THIS CONTRACT, made this _____ day of _____, 2010,
in pursuance generally of the Act of June 17, 1902 (32 Stat. 388), and acts amendatory or
supplementary thereto, including, but not limited to, the acts of August 26, 1937 (50 Stat. 844),
as amended and supplemented, August 4, 1939 (53 Stat. 1187), as amended and supplemented,
July 2, 1956 (70 Stat. 483), June 21, 1963 (77 Stat. 68), October 12, 1982 (96 Stat. 1263),
as amended, and Title XXXIV of the Act of October 30, 1992 (106 Stat. 4706), all collectively
hereinafter referred to as Federal Reclamation law, between the UNITED STATES OF
AMERICA, hereinafter referred to as the United States, and WESTLANDS WATER
DISTRICT, hereinafter referred to as the Contractor, a public agency of the State of California,
duly organized, existing, and acting pursuant to the laws thereof;

WITNESSETH, That:

EXPLANATORY RECITALS

WHEREAS, the United States and the Contractor entered into an interim
renewal contract identified as Contract No. 14-06-200-495A-IR1, hereinafter referred to as
the Interim Renewal Contract, which provided for the continued water service to the
Contractor; and

WHEREAS, the United States and the Contractor have entered into only one Interim Renewal Contract, Contract No. 14-06-200-495A-IR1, hereinafter referred to as the Existing Interim Renewal Contract, from January 1, 2008, through February 28, 2010; and

WHEREAS, the United States and the Contractor have made significant progress in their negotiations of a long-term renewal contract, believe that further negotiations on the long-term renewal contract would be beneficial, and mutually commit to continue to negotiate to seek to reach agreement, but anticipate that the environmental documentation necessary for execution of any long-term renewal contract will be delayed until March 2011, and may be delayed further for reasons beyond the control of the parties; and

WHEREAS, the Contractor has requested a subsequent interim renewal contract pursuant to subdivision (b) of Article 2 of the Interim Renewal Contract; and

WHEREAS, the United States has determined that the Contractor has to date fulfilled all of its obligations under the Existing Interim Renewal Contract; and

WHEREAS, the United States is willing to renew the Existing Interim Renewal Contract pursuant to the terms and conditions set forth below;

NOW, THEREFORE, in consideration of the mutual and dependent covenants herein contained, it is hereby mutually agreed by the parties hereto as follows:

INCORPORATION AND REVISION OF
EXISTING INTERIM RENEWAL CONTRACT

1. The terms and conditions of the Existing Interim Renewal Contract are hereby incorporated by reference into this Contract with the same force and effect as if they were included in full text with the exception of Article 2 thereof, which is revised as follows:

49 (a) The first sentence in subdivision (a) of Article 2 of the Existing Interim
50 Renewal Contract is modified as follows: “This Contract shall be effective from March 1, 2010
51 and shall remain in effect through February 29, 2012 and thereafter will be renewed as described
52 in subdivision (a) of Article 2 of the Interim Renewal Contract if a long-term renewal contract
53 has not been executed with an effective commencement date of March 1, 2012.”

54 (b) Subdivision (b) of Article 2 of the Existing Interim Renewal Contract is
55 amended by deleting the date “February 28, 2010,” and replacing same with the date
56 “February 29, 2012.”

57 IN WITNESS WHEREOF, the parties hereto have executed this Contract as of
58 the day and year first above written.

59 UNITED STATES OF AMERICA

60 By: _____
61 Regional Director, Mid-Pacific Region
62 Bureau of Reclamation

63 (SEAL) WESTLANDS WATER DISTRICT

64 By: _____
65 President

66 Attest:

67 _____
 Secretary

SAN LUIS UNIT

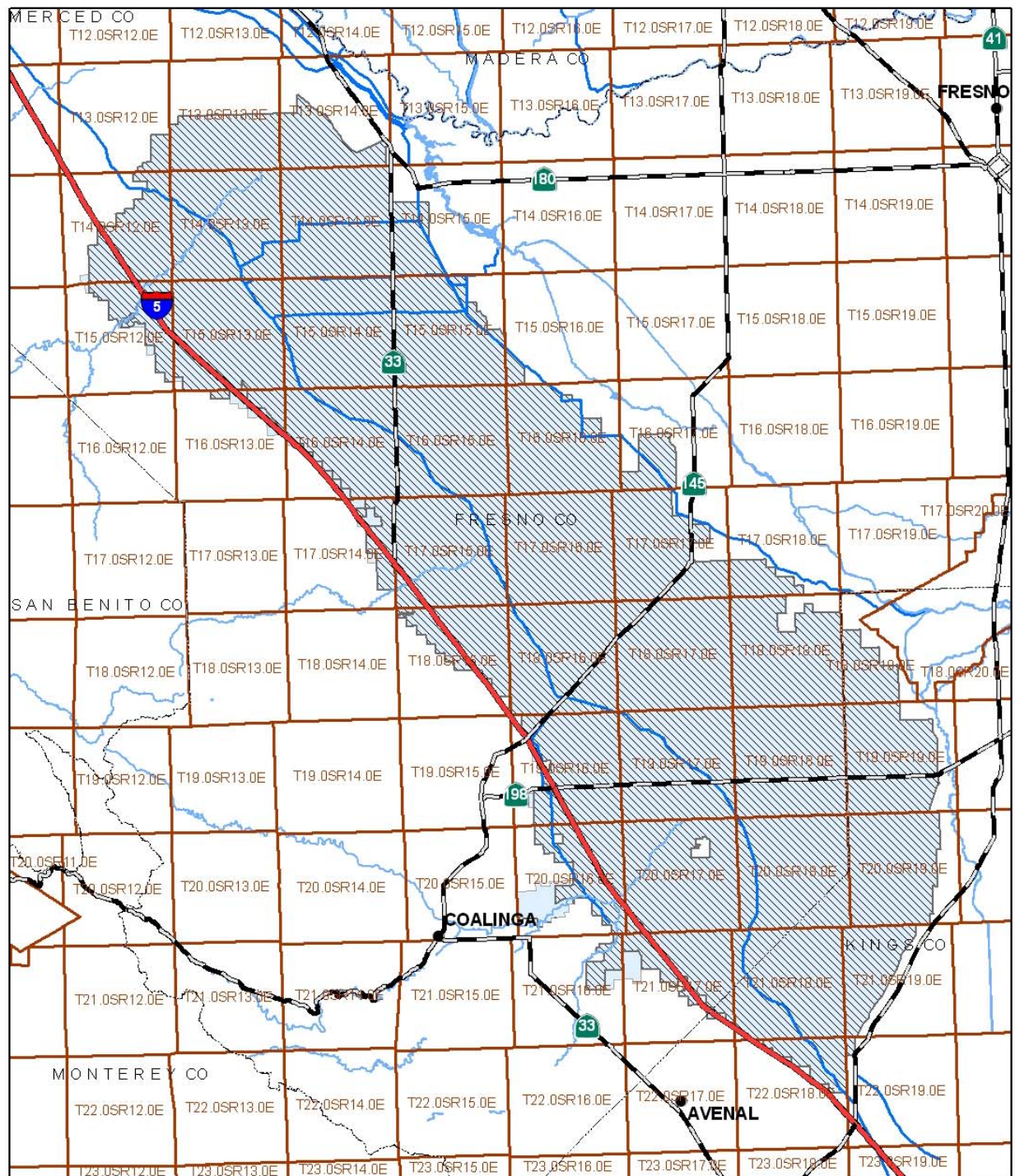
FINAL ENVIRONMENTAL ASSESSMENT

INTERIM RENEWAL CONTRACT 2010-2013

Appendix B

Maps of San Luis Unit Contractor's Service Area Boundaries

February 2010



-  Contractor's Service Area
-  District Boundary

Westlands Water District

Contract No. 14-06-200-495A-IR2

Contract No. 14-06-200-8092-IR12 (Broadview WD)

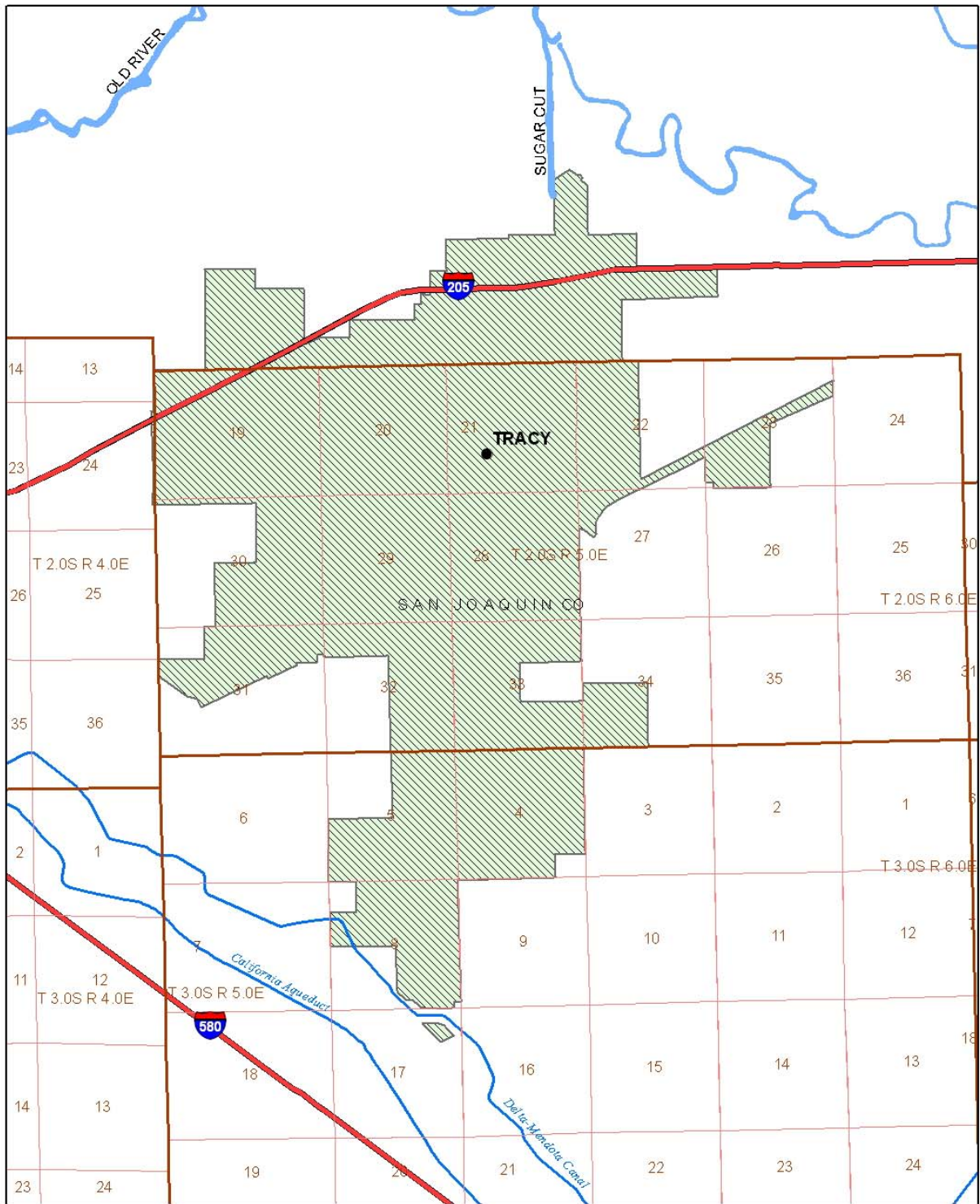
Contract No. 7-07-20-W0055-IR12-B (Centinella WD)

Contract No. 14-06-200-8018-IR12-B (Widren WD)

Contract No. 14-06-200-3365A-IR12-C (Mercy Springs WD)

0 5 10 Miles





Contractor's Service Area
District Boundary

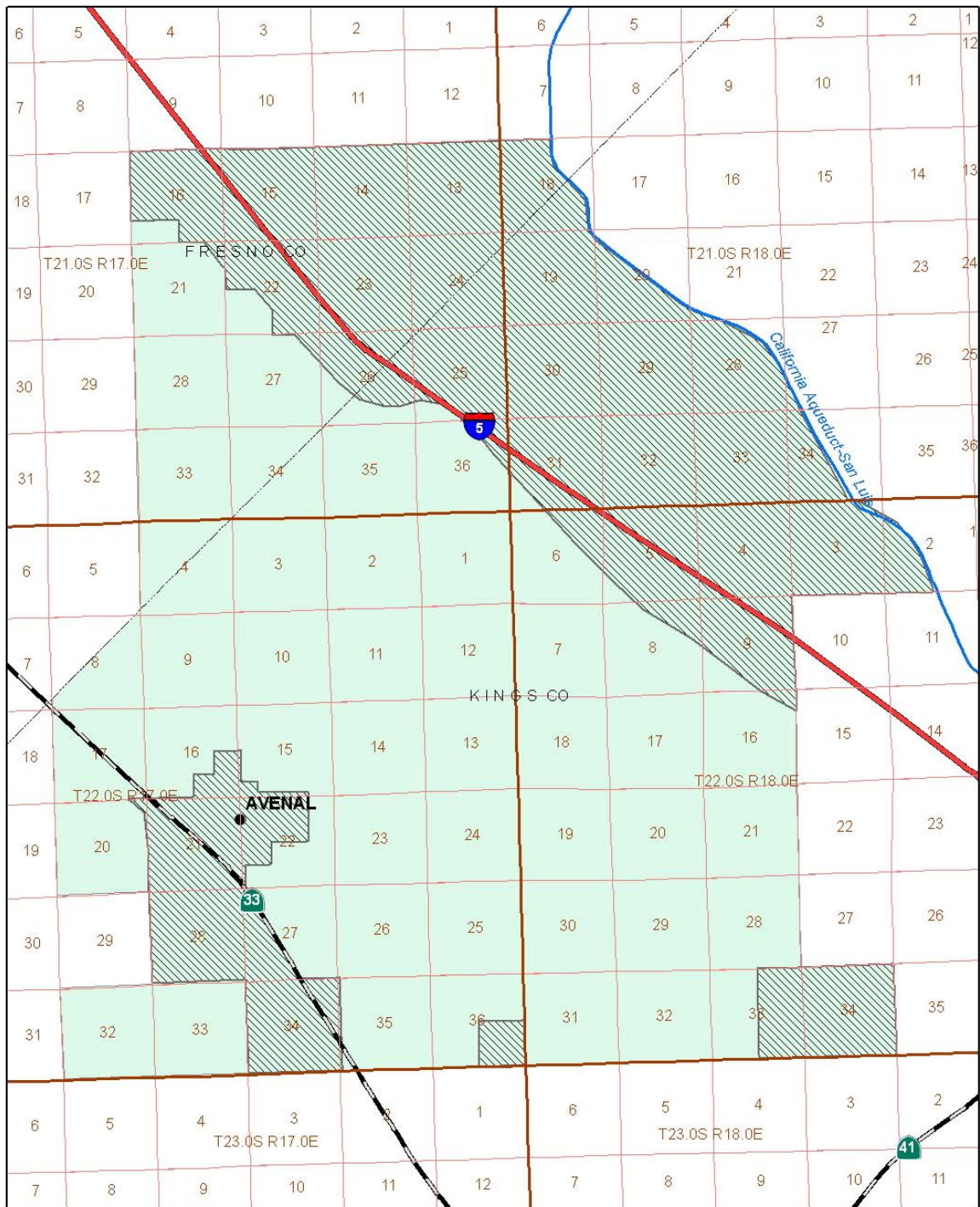
9/9/09
K:\mhiggins\projects\districts\tracy.mxd

City of Tracy

Contract No. 14-06-200-4305A-IR12-B (West Side ID)
Contract No. 7-07-20-W0045-IR12-B (Banta-Carbona ID)

0 0.5 1 Miles





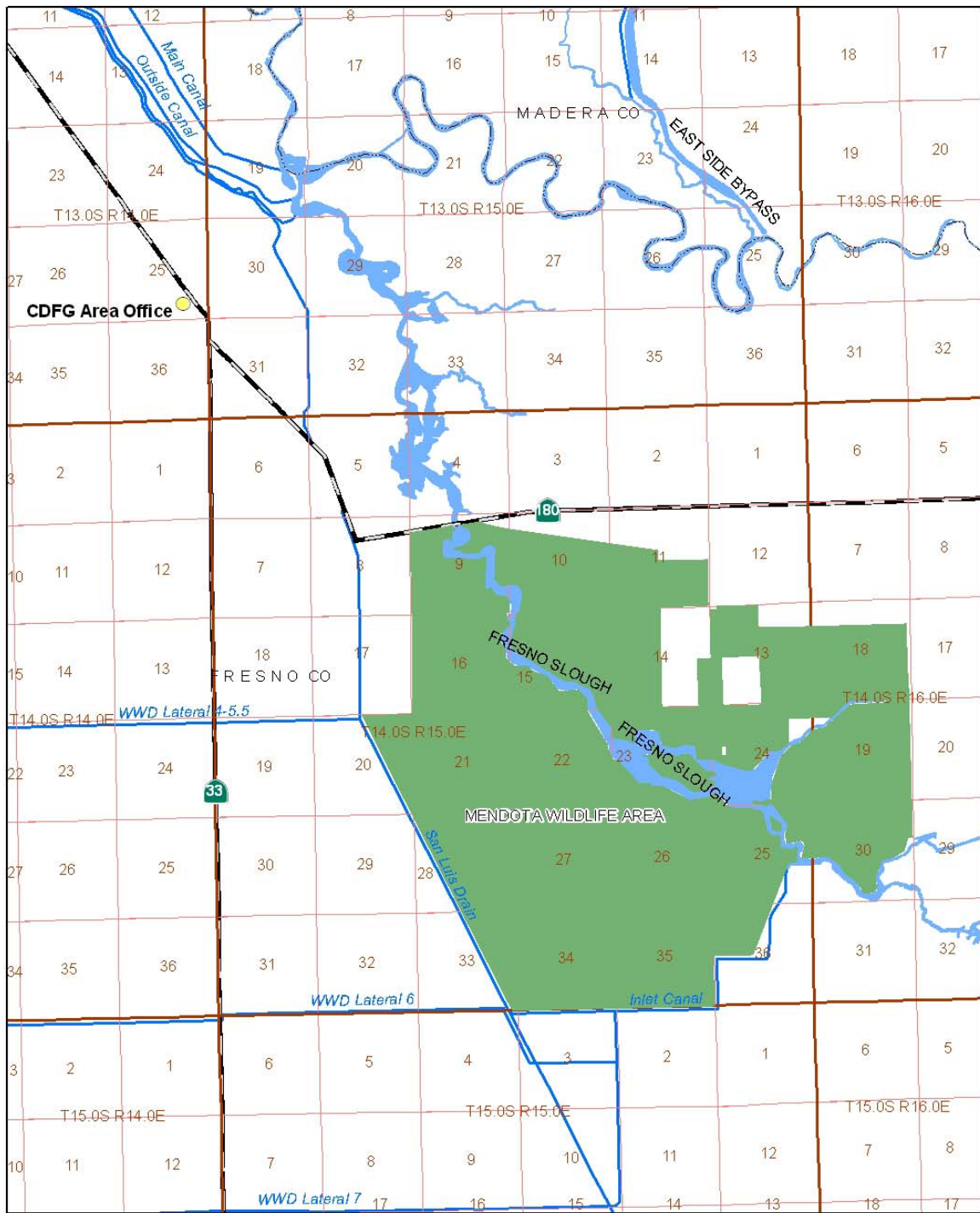
 Contractor's Service Area
 District Boundary

City of Avenal
 Contract No. 14-06-200-4619A-IR2

0 0.5 1 Miles



9/9/09
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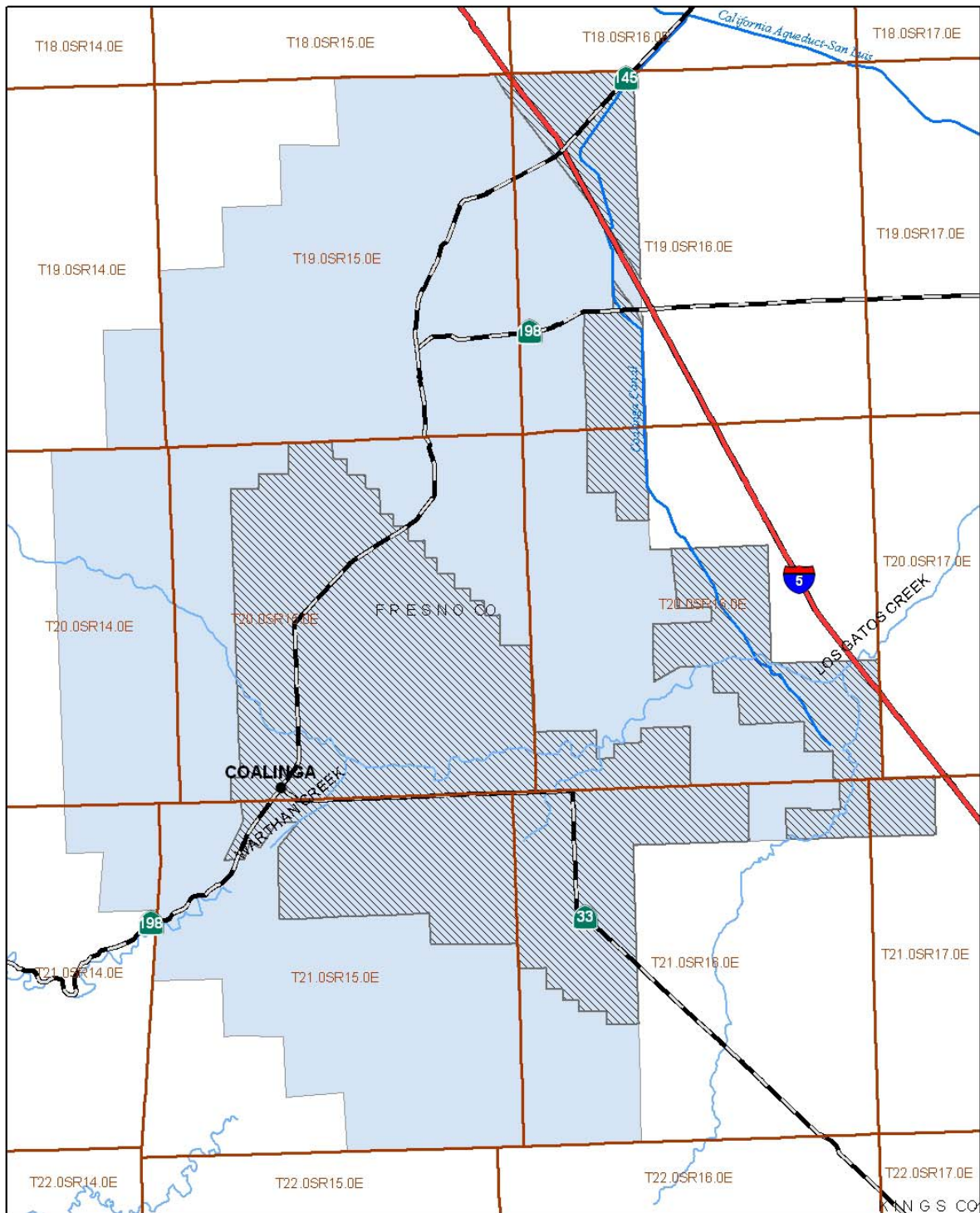
Wildlife Refuge Boundary

California Department of Fish and Game
Contract No. 14-06-200-8033A-IR2

0 0.5 1 Miles



9/9/09
K:\mhiggins\projects\districts\cdfg.mxd



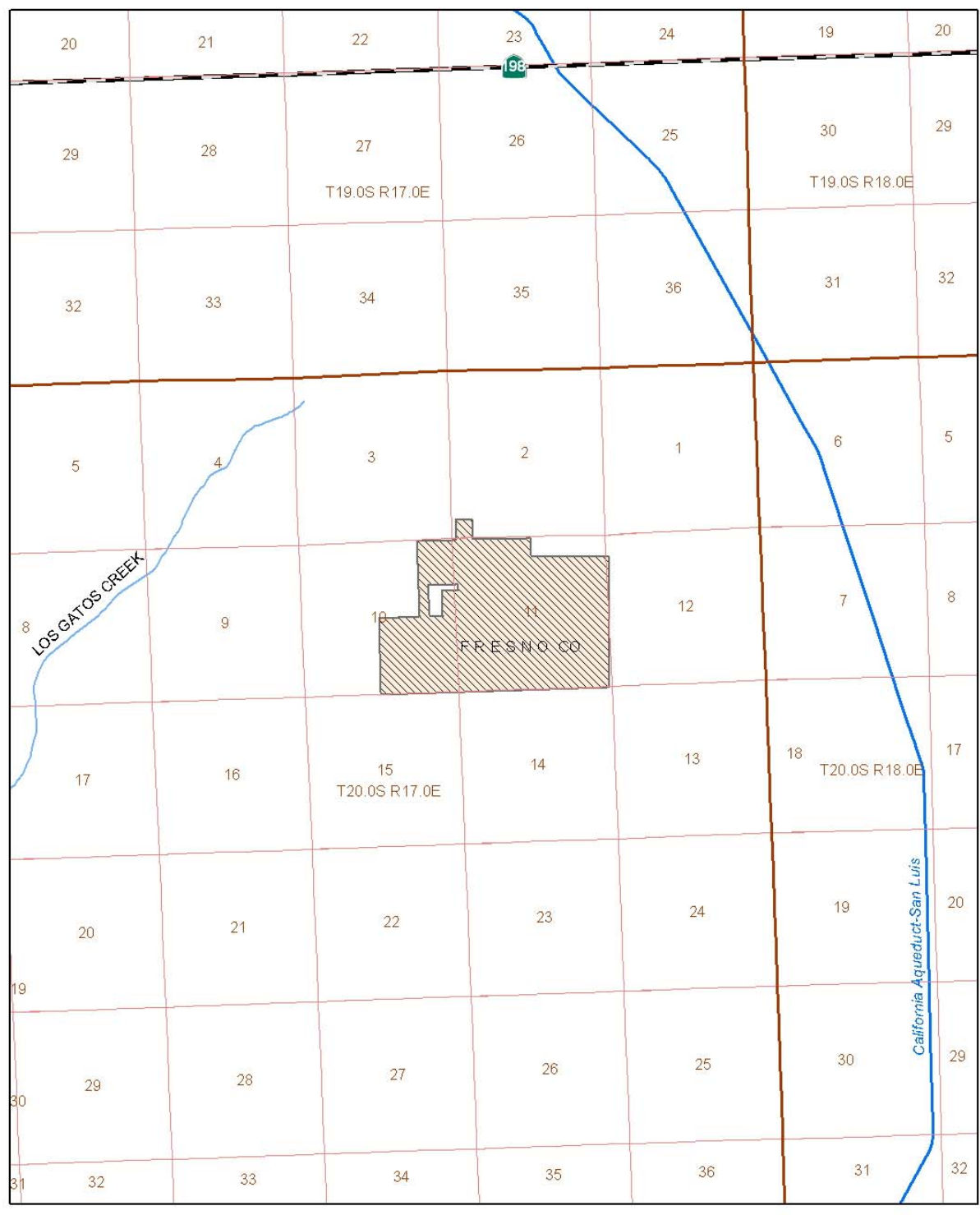
-  Contractor's Service Area
-  District Boundary

City of Coalinga
Contract No. 14-06-200-4173A-IR2

0 1 2 Miles



9/9/09
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- Contractor's Service Area
- District Boundary

City of Huron
Contract No. 14-06-200-7081A-IR2



9/9/09
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SAN LUIS UNIT

FINAL ENVIRONMENTAL ASSESSMENT

INTERIM CONTRACT RENEWAL

Appendix C
Environmental Documents

February 2010

Healer, Rain L

From: Nickels, Adam M
Sent: Friday, September 04, 2009 10:41 AM
To: Healer, Rain L; Barnes, Amy J; Bruce, Brandee E; Connolly, Jonathan D; Leigh, Anastasia T; Overly, Stephen A; Gruenhagen, Ned M; Kinsey, Charles M (Michael); Lewis, Jennifer; McDonald, Shauna A
Subject: RE: EA-09-101 San Luis Unit Interim Renewal Contracts for review
Attachments: Cultural Resources Section for San Luis Unit Project Descriptions.doc

Project No. 09-SCAO-332

Rain:

I have reviewed the EA 09-101 San Luis Unit Interim Renewal Contracts. I have included the section for the Cultural Resources portion of the EA (Attached). Both the No Action Alternative and the Proposed Action Alternative have no potential to effect historic properties pursuant to 36 CFR Part 800.3(a)(1). There is no effect to cultural resources as a result. Please include the cultural resource section in the Draft EA. Barring any substantive changes that may result in ground disturbance or modification of built environment features, we have no further review. The Section 106 process is complete.

Sincerely,

Adam M. Nickels, M.S.
Archeologist
Bureau of Reclamation
Mid-Pacific Regional Office, MP-153
2800 Cottage Way
Sacramento, California 95825

Phone: 916.978.5053

Fax: 916.978.5055

From: Healer, Rain L
Sent: Friday, September 04, 2009 8:50 AM
To: Barnes, Amy J; Bruce, Brandee E; Connolly, Jonathan D; Leigh, Anastasia T; Morris, Peter J; Nickels, Adam M; Overly, Stephen A; Gruenhagen, Ned M; Kinsey, Charles M (Michael); Lewis, Jennifer; McDonald, Shauna A
Subject: EA-09-101 San Luis Unit Interim Renewal Contracts for review

I have attached a new project for review.

Cost authority: A10-0805-8941-332-21-0-0

Rain L. Healer
Natural Resource Specialist
Bureau of Reclamation
1243 N Street, SCC 413
Fresno, CA 93721
(559) 487-5196
rhealer@usbr.gov

Healer, Rain L

From: Rivera, Patricia L
Sent: Thursday, September 24, 2009 1:29 PM
To: Healer, Rain L
Subject: RE: EA-09-101 San Luis Unit Interim Renewal Contracts

Rain,

I reviewed the proposed action to execute seven interim renewal contracts beginning March 1, 2010 for Westlands Water District (WWD) and the City of Tracy as well as four interim renewal contracts beginning March 1, 2011 for the California Department of Fish and Game (CDFG), and the cities of Huron, Coalinga and Avenal. Interim renewal contracts are undertaken under the authority of the CVPIA to provide a bridge between the expiration of the original long-term water service contracts and long-term renewal of those contracts. Each of the 11 renewal contracts will be renewed for up to two years.

The Proposed Action is the execution of 11 interim renewal water service contracts between the United States and the Central Valley Project (CVP) contractors. The existing interim renewal contracts expire between February 28, 2010 and February 28, 2011. All 11 of these contracts have existing Interim Renewal Contracts. WWD, CDFG, the cities of Avenal, Huron, and Coalinga are on their second interim renewal contract. WWD and the City of Tracy have full or partial assignments from Mercy Springs Water District (MSWD), Centinella Water District (CWD), Widren Water District (Widren), Broadview Water District (BWD), West Side Irrigation District (WSID), and Banta Carbona Irrigation District (BCID) which are currently in their eleventh Interim Renewal Contract.

The Proposed Action would continue these existing Interim Renewal Contracts, with only minor, administrative changes to the contract provisions to update the previous interim renewal contracts for the new contract period. In the event that a new long-term water contract is executed, that interim renewal contract would then expire.

No changes to any of the six CVP contractor service areas or water deliveries are part of the Proposed Action. CVP water deliveries under the 11 proposed interim renewal contracts can only be used within each designated contract service area. Contract service areas for the proposed interim renewal contracts have not changed from the existing interim renewal contracts. The proposed interim renewal contract quantities remain the same as in the existing interim renewal contracts. Water can be delivered under the interim renewal contracts in quantities up to the contract total, although it is likely that deliveries will be less than the contract total. The terms and conditions of the 2008 interim renewal contracts from EA-07-56 and EA-07-75 are incorporated by reference into the Proposed Action.

Interim renewal contracts are undertaken under the authority of the CVPIA to provide a bridge between the expiration of the original long-term water service contracts and long-term renewal of those contracts. Each of the 11 renewal contracts will be renewed for up to two years with contract provisions as negotiated between Reclamation and each of the San Luis Unit contractors. Negotiations between Reclamation and each of the San Luis Unit contractors have recently been completed.

The Proposed Action includes language addressing the O&M of facilities by San Luis Unit Contractors as described in the No Action Alternative as well as water measurement and conservation articles. The Proposed Action also includes the same definition of M&I Water as the No Action Alternative.

Article 16(c) of the interim renewal contracts for irrigation specifies that the Contracting Officer shall notify the Contractor in writing when drainage service becomes available, and provides for the payment of rates for such service after such notice. The M&I contracts do not include drainage language.

The primary difference between the Proposed Action and the No Action Alternative is that the Proposed Action does not include tiered pricing. Section 3405(d) of the CVPIA does not require tiered pricing to be included in contracts of three years or less in duration and negotiations between Reclamation and the six San Luis Unit contractors concluded with a form of contract which does not include tiered pricing. Consequently, if at least 80 percent of the contract total is delivered in any year during the term of the interim renewal contracts, in such year no incremental charges for water in excess of 80 percent of the contract total will be collected and paid to the Restoration Fund.

The following assumptions are made under each alternative:

- A. Execution of each interim renewal contract is considered to be a separate action;
- B. A two year interim renewal period is considered in the analysis, though contracts may be renewed for a shorter period.
- C. The contracts will be renewed with existing contract quantities as reflected in Table 2.1 below;
- D. Reclamation would continue to comply with commitments made or requirements imposed by applicable environmental documents, such as existing biological opinions (BOs) including any obligations imposed on Reclamation resulting from reconsultations; and
- E. Reclamation would implement its obligations resulting from Court Orders issued in actions challenging applicable BOs that take effect during the interim renewal period.

The proposed action does not affect Indian Trust Assets. The nearest ITA is Santa Rosa Rancheria approximately 6 miles East of the project location.

Patricia



IN REPLY REFER TO:

SCC-420
ENV-7.00

United States Department of the Interior

BUREAU OF RECLAMATION
South-Central California Area Office
1243 N Street
Fresno, California 93721-1813



SEP 15 2009

MEMORANDUM

To: Field Supervisor, U.S. Fish & Wildlife Service, Sacramento, CA
Attn: Dan Russell, Endangered Species Division Chief

From: Michael Kinsey 
Supervisory Wildlife Biologist

Subject: Renewal of Interim Water Service Contracts for Cross Valley and South of Delta Contractors

The Bureau of Reclamation is proposing to renew interim water service contracts (IRC's) with a number of contractors, as shown in the attached table. Each of these IRC's is a continuation of previous interim contracts, and are identical to the previous interim contracts except for the dates and contract file numbers (see the discussion below regarding the Kern-Tulare and Rag Gulch IRC's, however). Reclamation is requesting consultation under section 7 of the Endangered Species Act (ESA) (16 U.S.C. §1531 et seq.) for the proposed action.

Kern-Tulare Water District (KT) and Rag Gulch Water District (RG) have consolidated their two districts into one, under KT's name, through a contract assignment of RG's IRC to KT. In essence, KT will be issued two IRC's – one as the KT IRC (for 40,000 acre-feet), and one as RG's assigned IRC (for 13,300 acre-feet). As part of that assignment, KT has committed to maintain the effective separation of the two districts in terms of how much water is delivered and applied where, until the long-term water service contracts are negotiated and appropriate environmental compliance is complete. What this means is that the water that is delivered to KT under the KT IRC will only be applied to lands within the historic KT contract service area boundaries, and water that is delivered to KT under the RG IRC will only be applied to lands within the historic RG contract service area boundaries. No service area boundaries are being changed as a result of the proposed federal action of executing the IRC's. Any potential effects are thus the same as have been analyzed under the previous and existing IRC's.

Reclamation has provided information for all of the proposed IRC's for previous consultations, and the analyses contained within that information has not changed beyond that already described.

Please be aware that the implementation of the proposed federal action is separate from the operations of the Central Valley Project (which are covered under the Operations Criteria & Plan Biological Opinion), from implementation of the Grasslands Bypass Project (which is

undergoing concurrent ESA compliance for the 3rd Use Agreement), and from execution of long-term water service contracts (which have undergone or will undergo separate appropriate ESA compliance).

Please contact me if you have any questions on this matter. I can be reached at 559-487-5139, at 800-735-2929 for the hearing impaired, and at ckinsey@usbr.gov.

Attachment - 1

cc: Mr. Michael Welsh
U.S. Fish & Wildlife Service
2800 Cottage Way, W-2605
Sacramento, CA 95825-1846
(w/attachment)

SCC-400, SCC-414, SCC-415, SCC-440
T0-440
(w/attachment)

Contractor	Contract No.	Begin Date	End Date	Amount (af)	Purpose of Use	USFWS File No.
Fresno, County of	14-06-200-8292A-IR13	March 1, 2010	February 29, 2012	3,000	Ag/M&I	08-F-0944
Hills Valley Irrigation District	14-06-200-8466A-IR13	March 1, 2010	February 29, 2012	3,346	Ag/M&I	08-F-0944
Kern-Tulare Water District	14-06-200-8601A-IR13	March 1, 2010	February 29, 2012	53,300 (40,000 KT + 13,300 RG)	Ag/M&I	08-F-0944
Lower Tule River Irrigation District	14-06-200-8237A-IR13	March 1, 2010	February 29, 2012	31,102	Ag/M&I	08-F-0944
Pararo Valley WMA, Santa Clara Valley WD, WWD (Mercy Springs 3 way)	14-06-200-3365A-IR12-B (SCV)	March 1, 2010	February 29, 2012	6,260	Ag/M&I	08-F-0944
Pixley Irrigation District	14-06-200-8238A-IR13	March 1, 2010	February 29, 2012	31,102	Ag/M&I	08-F-0944
Tracy, City of (Banta Carbona)	7-07-20-W0045-IR12-B	March 1, 2010	February 29, 2012	5,000	Ag/M&I	08-F-0944
Tracy, City of (The West Side ID)	14-06-200-4305A-IR12-B	March 1, 2010	February 29, 2012	2,500	Ag/M&I	08-F-0944
Tri-Valley Water District	14-06-200-8565A-IR13	March 1, 2010	February 29, 2012	1,142	Ag/M&I	08-F-0944
Tulare, County of	14-06-200-8293A-IR13	March 1, 2010	February 29, 2012	5,308	Ag/M&I	08-F-0944
Westlands WD, Distribution District 1 (Broadview)	14-06-200-8092-IR12	March 1, 2010	February 29, 2012	27,000	Ag/M&I	08-F-0944
Westlands WD, Distribution District 1 (Centinella)	7-07-20-W0055-IR12-B	March 1, 2010	February 29, 2012	2,500	Ag/M&I	08-F-0944
Westlands WD, Distribution District 1 (Widren)	14-06-200-8018-IR12-B	March 1, 2010	February 29, 2012	2,990	Ag/M&I	08-F-0944
Westlands WD, Distribution District 2 (Mercy Springs)	14-06-200-3365A-IR12-C	March 1, 2010	February 29, 2012	4,198	Ag/M&I	08-F-0944
Avenal, City of	14-06-200-4619A-IR2	March 1, 2011	February 28, 2013	3,500	M&I	81420-2008-F-0538
CDFG	14-06-200-8033A-IR2	March 1, 2011	February 28, 2013	10	M&I	81420-2008-F-0538
Coalinga, City of	14-06-200-4173A-IR2	March 1, 2011	February 28, 2013	10,000	M&I	81420-2008-F-0538
Huron, City of	14-06-200-7081A-IR2	March 1, 2011	February 28, 2013	3,000	M&I	81420-2008-F-0538
Westlands Water District	14-06-200-495A-IR2	March 1, 2010	February 29, 2012	1,150,000	Ag/M&I	81420-2008-F-0538

SAN LUIS UNIT

FINAL ENVIRONMENTAL ASSESSMENT

INTERIM CONTRACT RENEWAL 2010-2013

Appendix D
Water Needs Assessment

February 2010

TRACY, CITY OF

Contractor ID: 202135

Delta

Water Needs Assessment

Contractor's Water Supply Sources and Quantities (acre-feet) Date: 5/25/2006 9:12:41

Timeframe	Surface Water Supply					Groundwater Supply			
	Reference Delivery 2	USBR Total Deliv/Max 3	SWP 4	Local 5	Local Source 6	Trsfir / Rtm / Recycle In 7	Trsfir / Out 8	District 9	Total Supply 13
1995	10,000 *	0	0	0	0	0	0	5,000	5,000
2025	10,000 *	10,000 *	0	0	0	32,500	0	5,000	47,500

Maximum Productive Acres: 3,962

Contractor's Agricultural Water Demands

Timeframe	Crop Water Requirement (acre-feet) 15	District Irrig. Efficiency (%) 16	Effective Precip (acre-feet) 17	Reference Effective Precip (acre-ft) 18	Calculated		Average Irrigated Acres (acres) 21	Reference Irrigated Acres (acres) 22	Calculated FDR (AF/acre) 23	USBR FDR (AF/acre) 24	Conveyance Loss (acre-feet) 25	Total Ag Demand (acre-feet) 26
					Net Crop Water Req (acre-feet) 19	USBR Net Crop Water Req (acre-feet) 20						
1995												
2025												

Contractor's M&I Water Demands

Timeframe	Residential Water Demand				Nonresidential Water Demand				Ref Urban Per Capita Dmd (gpod) 35	Calc Urban Per Capita Dmd (gpod) 36	Total M&I Demand (acre-feet) 37	Total Ag + M&I Dmd (acre-feet) 38	Unmet Demand (acre-feet) 39
	Population 28	Per Capita Demand (gpod) 29	Total Demand (acre-feet) 30	Industrial (acre-feet) 31	Comm / Instit. (acre-feet) 32	Total Demand (acre-feet) 33	Unacc. / Distr. (acre-feet) 34	Loss					
1995	46,000	242.3	12,487	0	0	0	0	0	301.0	242.3	12,487	12,487	7,487
2025	160,000	256.7	46,000	0	0	0	0	0	269.0	256.7	46,000	46,000	-1,500

* Represents Maximum Contract Amount

In 2025, transfers in = 10,000 ac-ft (So. San Joaquin ID), 3,000 ac-ft (Widren), 5,000 ac-ft (Banta Carbona), 5,000 ac-ft (The West Side) and 9,500 ac-ft (Plain View). Many of these transfers are uncertain.

Water Needs Assessment

TRACY, CITY OF

Contractor ID: 202135

Date: 10/14/2004 3:30:24

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

Timeframe	Surface Water Supply					Groundwater Supply			
	Reference Delivery	USBR Total Deliv/Max	SWP	Local	Local Source	Trsfir / Rtm / Recycle In	Trsfir / Out	District	Total Supply
1	2	3	4	5	6	7	8	9	13
1995	10,000	0	0	0	0	0	0	5,000	0
2025	10,000	10,000	0	0	0	32,500	0	5,000	0
Maximum Productive Acres: 3,962									

Contractor's Agricultural Water Demands

Timeframe	Crop Water Requirement (acre-feet)	District Irrig. Efficiency (%)	Effective Precip (acre-feet)	Reference Effective Precip (acre-ft)	Calculated		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)
					Net Crop Water Req (acre-feet)	Water Req (acre-feet)							
1	15	16	17	18	19	20	21	22	23	24	25	26	26
1995													
2025													

Contractor's M&I Water Demands

Timeframe	Residential Water Demand			Nonresidential Water Demand			Loss		Ref Urban Per Capita Dmd (gpcd)	Calc Urban Per Capita Dmd (gpcd)	Total M&I Demand (acre-foot)	Total Ag + M&I Dmd (acre-foot)	Unmet Demand (acre-foot)
	Population 28	Per Capita Demand (gpcd) 29	Total Demand (acre-foot) 30	Industrial (acre-foot) 31	Comm / Instlt. (acre-foot) 32	Total Demand (acre-foot) 33	Unacc. / Distr. (acre-foot) 34						
1995	46,000	242.3	12,487	0	0	0	0	301.0	242.3	12,487	12,487	7,487	
2025	160,000	256.7	46,000	0	0	0	0	269.0	256.7	46,000	46,000	-1,500	

* Represents Maximum Contract Amount

Notes: In 2025, transfers in = 10,000 ac-ft (So. San Joaquin ID), 3,000 ac-ft (Widren), 5,000 ac-ft (Banta Carbona), 5,000 ac-ft (The West Side) and 9,500 ac-ft (Plain View). Many of these transfers are uncertain.

Water Needs Assessment

TRACY, CITY OF

Contractor ID: 202135

Delta

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

Date: 6/2/2003 8:27:05 A

Contractor's Water Supply												
Timeframe	Surface Water Supply						Groundwater Supply				Total Supply	
	Reference Delivery 2	USBR Total Deliv/Max 3	SWP 4	Local 5	Local Source 6	Trsf / Rtm / Recycle In 7	Trsf / Out 8	District 9	Private 10	Safe Yield 11		Recharge 12
1995	10,000	-	0	0	0	0	0	5,000	0	0	0	5,000
2025	10,000	-	10,000	0	0	32,500	0	5,000	0	0	0	47,500
Maximum Productive Acres: 3,962												
Contractor's Agricultural Water Demands												

Maximum Productive Acres: 3,962

Contractor's Agricultural Water Demands

Timeframe	Crop Water Requirement (acre-feet)	District Irrig. Efficiency (%)	Effective Precip (acre-feet)	Reference Effective Precip (acre-ft)	Reference		Average Irrigated Acres	Reference Irrigated Acres	USBR Net		Calculated FDR (AF/acre)	USBR FDR (AF/acre)	Conveyance Loss (acre-feet)	Total Ag Demand (acre-feet)
					Water Req	Crop Water Req			Water Req	Crop Water Req				
1	15	16	17	18	19	20	21	22	23	24	25	26	27	28
1995														
2025														

Contractor's M&I Water Demands

Timeframe	Residential Water Demand			Nonresidential Water Demand			Loss		Ref Urban Per Capita Dmd (gpcd) 35	Calc Urban Per Capita Dmd (gpcd) 36	Total M&I Demand (acre-feet) 37	Total Ag + M&I Dmd (acre-feet) 38	Unmet Demand (acre-feet) 39
	Population 28	Per Capita Demand (gpcd) 29	Total Demand (acre-feet) 30	Industrial (acre-feet) 31	Comm / Insit. (acre-feet) 32	Total Demand (acre-feet) 33	Unacc. / Distr. (acre-feet) 34						
1995	46,000	242.3	12,487	0	0	0	0	301.0	242.3	12,487	12,487	7,487	
2025	160,000	256.7	46,000	0	0	0	0	269.0	256.7	46,000	46,000	-1,500	

* Represents Maximum Contract Amount

In 2025, transfers in = 10,000 ac-ft (So. San Joaquin ID), 3,000 ac-ft (Widren), 5,000 ac-ft (Banta Carbona), 5,000 ac-ft (The West Side) and 9,500 ac-ft (Plain View).

Notes: Many of these transfers are uncertain.

Division: Delta

Water Needs Assessment

District:

Date: 3/8/01

TRACY, CITY OF

Agricultural and M&I Water Supply

Contractor's Water Supply Sources and Quantities (acre-feet)												
Timeframe	Surface Water Supply						Groundwater Supply					
	Reference Delivery	USBR Total Deliv/Max	SWP	Local	Local Source	Irrftr/Run /Recycle In	Irrftr/ Out	District	Private	Safe Yield	Recharge	Total Supply
1	2	3	4	5	6	7	8	9	10	11	12	13
1995	10,000 *	0	0	0	0	0	0	5,000	0	0	0	5,000
2025	10,000 *	10,000 *	0	0	0	13,000	0	5,000	0	0	0	28,000

Maximum Productive Acres= 3,962

Contractor's Agricultural Water Demands

Timeframe	Crop Water Requirement (acre-feet)	District Irrig. Efficiency (%)	Reference Effective Precip (acre-feet)	Calculated Not Crop Water Req (acre-feet)	USBR Net Crop Water Req (acre-feet)	Average Irrigated Acres	Reference Irrigated Acres	Calculated FDR (AF/acre)	USBR FDR (AF/acre)	Conveyance Loss (acre-feet)	Total Ag Demand (acre-feet)
1	15	16	17	18	20	21	22	23	24	25	26

1995

2025

Contractor's M&I Water Demands

Timeframe	Residential Water Demand				Nonresidential Water Demand				Loss				Total Demand (acre-feet)	Unmet Demand (acre-feet)
	Population	Per Capita Demand (gpcd)	Total Demand (acre-feet)	Industrial (acre-feet)	Comm/ Instit (acre-feet)	Total Demand (acre-feet)	Unacc /Dist (acre-feet)	Ref Urban Per Capita Dmd (gpcd)	Total MCI Demand (acre-feet)	Ag+ MCI Dmd (acre-feet)	Total			
1	28	29	30	31	32	33	34	35	36	37	38	39		
1995	46,000	242.3	12,487	0	0	0	0	301.0	242.3	12,487	12,487	7,487		
2025	160,000	256.7	46,000	0	0	0	0	269.0	256.7	46,000	46,000	18,000		

Notes:

* 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

AVENAL, CITY OF

Contractor ID: 203181

West San Joaquin

Date: 5/25/2006 9:14:45

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

Contractor's Agricultural Water Demands												
Timeframe	Reference Delivery 2	Surface Water Supply					Groundwater Supply					Total Supply 13
		USBR Total Deliv/Max 3	SWP 4	Local 5	Local Source 6	Trsfr / Rtm / Recycle In 7	Trsfr / Out 8	District 9	Private 10	Safe Yield 11	Recharge 12	
1997representative	3,500 *	2,432	0	0	0	0	0	0	0	0	0	2,432
2025	3,500 *	3,500	0	0	0	0	0	0	0	0	0	3,500
Maximum ProductiveAcres:												11,099

Maximum Productive Acres: 11,099

Contractor's Agricultural Water Demands

Timeframe	Crop Water Requirement (acre-feet) 15	District Irrig. Efficiency (%) 16	Effective Precip (acre-feet) 17	Reference Effective Precip (acre-ft) 18	Calculated Net Crop Water Req (acre-feet) 19	USBR Net Crop Water Req (acre-feet) 20	Average Irrigated Acres (acres) 21	Reference Irrigated Acres (acres) 22	Calculated FDR (AF/acre) 23	USBR FDR (AF/acre) 24	Conveyance Loss (acre-feet) 25	Total Ag Demand (acre-feet) 26
1997												
2025												

Contractor's M&I Water Demands

Timeframe	Residential Water Demand			Nonresidential Water Demand			Loss		Ref Urban Per Capita Dmd (gpod) 35	Calc Urban Per Capita Dmd (gpod) 36	Total M&I Demand (acre-feet) 37	Total Ag + M&I Dmd (acre-feet) 38	Unmet Demand (acre-feet) 39
	Population 28	Per Capita Demand (gpod) 29	Total Demand (acre-feet) 30	Industrial (acre-feet) 31	Comm / Instit. (acre-feet) 32	Total Demand (acre-feet) 33	Unacc. / Distr. (acre-feet) 34						
1997	6,495	106.1	772	33	1,300	1,333	328	311.0	334.4	2,433	2,433	1	
2025	12,000	97.2	1,306	57	2,143	2,200	385	274.0	289.5	3,891	3,891	391	

* Represents Maximum Contract Amount

Note: Unaccounted beneficial use is added to distribution system loss; the total is shown under Distribution system loss.

Water Needs Assessment

AVENAL, CITY OF

Contractor ID: 203181

West San Joaquin

Date: 10/14/2004 3:30:26

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

Contractor's Water Supply Sources and Services												
Timeframe	Surface Water Supply						Groundwater Supply				Total Supply	
	Reference Delivery 2	USBR Total Deliv/Max 3	SWP 4	Local 5	Local Source 6	Trsf / Rlm / Recycle In 7	Trsf / Out 8	District 9	Private 10	Safe Yield 11		Recharge 12
1997representative	3,500 *	2,432	0	0	0	0	0	0	0	0	0	2,432
2025	3,500 *	3,500	0	0	0	0	0	0	0	0	0	3,500

Maximum Productive Acres: 11,099

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)
1	15	16	17	18	19	20	21	22	23	24	25	26
1997												
2025												

Contractor's M&I Water Demands

Timeframe	Residential Water Demand			Nonresidential Water Demand			Loss	Rel Urban Per Capita Dmd (gpcd)	Calc Urban Per Capita Dmd (gpcd)	Total M&I Demand (acre-foot)	Total Ag + M&I Dmd (acre-foot)	Unmet Demand (acre-foot)
	Population 28	Per Capita Demand (gpcd) 29	Total Demand (acre-foot) 30	Industrial (acre-foot) 31	Comm / Instit. (acre-foot) 32	Total Demand (acre-foot) 33	Unacc. / Distr. (acre-foot) 34					
1997	6,495	106.1	772	33	1,300	1,333	328	311.0	334.4	2,433	2,433	1
2025	12,000	97.2	1,306	57	2,143	2,200	385	274.0	289.5	3,891	3,891	391

* Represents Maximum Contract Amount

Notes: Unaccounted beneficial use is added to distribution system loss; the total is shown under Distribution system loss.

Water Needs Assessment

AVENAL, CITY OF

Contractor ID: 203181

West San Joaquin

Date: 6/2/2003 8:27:13 A

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

Timeframe	Surface Water Supply					Groundwater Supply			
	Reference Delivery 2	USBR Total Deliv/Max 3	SWP 4	Local 5	Local Source 6	Trsf / Rtrn / Recycle In 7	Trsf / Out 8	District 9	Total Supply 13
1997representative	3,500 *	2,432	0	0	0	0	0	0	2,432
2025	3,500 *	3,500	0	0	0	0	0	0	3,500

Maximum Productive Acres: 11,099

Contractor's Agricultural Water Demands

Timeframe	Crop Water Requirement (acre-feet) 15	District Irrig. Efficiency (%) 16	Effective Precip (acre-feet) 17	Reference Effective Precip (acre-ft) 18	Reference		Average Irrigated Acres (acres) 21	Reference Irrigated Acres (acres) 22	Calculated FDR (AF/acre) 23	USBR FDR (AF/acre) 24	Conveyance Loss (acre-feet) 25	Total Ag Demand (acre-feet) 26
					Calculated	USBR Net						
1997					Net Crop Water Req (acre-feet) 19	Crop Water Req (acre-feet) 20						
2025												

Contractor's M&I Water Demands

Timeframe	Residential Water Demand			Nonresidential Water Demand			Loss		Ref Urban Per Capita Dmd (gpcd) 35	Calc Urban Per Capita Dmd (gpcd) 36	Total M&I Demand (acre-feet) 37	Total Ag + M&I Dmd (acre-feet) 38	Unmet Demand (acre-feet) 39
	Population 28	Per Capita Demand (gpcd) 29	Total Demand (acre-feet) 30	Industrial (acre-feet) 31	Comm / Insit. (acre-feet) 32	Total Demand (acre-feet) 33	Unacc. / Distr. (acre-feet) 34						
1997	6,495	106.1	772	33	1,300	1,333	328	311.0	334.4	2,433	2,433	1	
2025	12,000	97.2	1,306	57	2,143	2,200	385	274.0	289.5	3,891	3,891	391	

* Represents Maximum Contract Amount

Notes: Unaccounted beneficial use is added to distribution system loss; the total is shown under Distribution system loss.

Contractor's Water Supply Sources and Quantities (acre-feet)												
Timeframe	Surface Water Supply							Groundwater Supply				Total Supply 13
	Reference Delivery 2	USBR Total Deliv/Max 3	SWP 4	Local 5	Local Source 6	Trsfir/Rtrn /Recycle In		District 9	Private 10	Safe		
						7	8			Yield 11	Recharge 12	
1995	3,500 *	2,432	0	0	0	0	0	0	0	0	0	2,432
1997	3,500 *	2,432	0	0	0	0	0	0	0	0	0	2,432
representative												
2025	3,500 *	3,500	0	0	0	0	0	0	0	0	0	3,500
Contractor's Agricultural Water Demands												Maximum Productive Acres= 0

Contractor's Agricultural Water Demands Maximum Productive Acres= 0

Timeframe	Crop Water Requirement (acre-feet)	District Irrig. Efficiency (%)	Reference 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

1995
 1997
 2025

Contractor's M&I Water Demands

Timeframe	Residential Water Demand				Nonresidential Water Demand				Loss			
	Population	Per Capita Demand (gpcd)	Total Demand (acre-feet)	Industrial (acre-feet)	Comm/Inst (acre-feet)	Total Demand (acre-feet)	Unacc/Distr (acre-feet)	Ref Urban Per Capita Dmd (gpcd)	Calc Urban Per Capita Dmd (gpcd)	Total MCI Demand (acre-feet)	Total Ag+MCI Dmd (acre-feet)	Unmet Demand (acre-feet)
1	28	29	30	31	32	33	34	35	36	37	38	39
1995	6,495	106.1	772	33	1,300	1,333	328	311.0	334.4	2,433	2,433	1
1997	6,495	106.1	772	33	1,300	1,333	328	311.0	334.4	2,433	2,433	1
2025	12,000	97.2	1,306	57	2,143	2,200	385	274.0	289.5	3,891	3,891	391

Notes: Unaccounted beneficial use is added to distribution system loss; the total is shown under Distribution system loss.

* 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.

COALINGA, CITY OF

Contractor ID: 203182

West San Joaquin

Water Needs Assessment

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

Date: 5/25/2006 9:14:45

Contractor's Water Supply												
Timeframe 1	Surface Water Supply						Groundwater Supply				Total Supply 13	
	Reference Delivery 2	USBR Total Deliv/Max 3	SWP 4	Local 5	Local Source 6	Trsf / Rtm / Recycle In 7	Trsf / Out 8	District 9	Private 10	Safe Yield 11		Recharge 12
1996	10,000	*	4,321	0	0	0	0	0	0	0	0	4,321
1998	10,000	*	3,995	0	0	0	0	0	0	0	0	3,995
2025	10,000	*	10,000	0	0	0	0	0	0	0	0	10,000
Maximum Productive Acres: 34,538												
Contractor's Agricultural Water Demands												

Maximum Productive Acres: 34,538

Contractor's Agricultural Water Demands

Timeframe	Crop Water Requirement (acre-feet)	District Irrig. Efficiency (%)	Reference Effective Precip (acre-ft)	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
1996												
1998												
2025												

Contractor's M&I Water Demands

Timeframe	Residential Water Demand				Nonresidential Water Demand				Loss		Ref Urban Per Capita Dmd (gpcd)	Calc 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	Total Demand	Industrial	Comm / Instit.	Total Demand	Unacc. / Distr.	Loss							
1	28	29	30	31	32	33	34				35	36	37	38	39
1996	14,990	257.3	4,321	0	0	0	0	0	0	0	311.0	257.3	4,321	4,321	0
1998	15,400	108.7	1,875	600	1,295	1,895	225	225	225	225	311.0	231.6	3,995	3,995	0
2025	27,000	279.6	8,455	0	0	0	563	563	563	563	274.0	298.2	9,018	9,018	-982

* Represents Maximum Contract Amount

Unaccounted beneficial uses are added to distribution system losses and shown under Distribution system loss. 2025 system losses based on 1998 system loss rate.
The City's population includes 5,000 inmates at the Pleasant Valley State Prison.

COALINGA, CITY OF

Contractor ID: 203182

West San Joaquin

Water Needs Assessment

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

Date: 10/14/2004 3:30:26

Timeframe 1	Surface Water Supply											Groundwater Supply			Total Supply 13
	Reference Delivery 2	USBR Total Deliv/Max 3	SWP				Local Source 6	Trsf / Rtm / Recycle In 7	Trsf / Out 8	District 9	Private 10	Safe Yield 11		Recharge 12	
			SWP 4	Local 5											
1996	10,000 *	4,321	0	0	0	0	0	0	0	0	0	0	0	0	4,321
1998	10,000 *	3,995	0	0	0	0	0	0	0	0	0	0	0	0	3,995
2025	10,000 *	10,000	0	0	0	0	0	0	0	0	0	0	0	0	10,000
Maximum Productive Acres: 34,538															

Contractor's Agricultural Water Demands

Maximum Productive Acres: 34,538

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)
1	15	16	17	18	19	20	21	22	23	24	25	26
1996												
1998												
2025												

Contractor's M&I Water Demands

Timeframe	Residential Water Demand			Nonresidential Water Demand			Loss		Ref Urban Per Capita Dmd (gpcd)	Calc Urban Per Capita Dmd (gpcd)	Total M&I Demand (acre-feet)	Total Ag + M&I Dmd (acre-feet)	Unmet Demand (acre-feet)
	Population 28	Per Capita Demand (gpcd)	Total Demand (acre-feet)	Industrial (acre-feet)	Comm / Instit. (acre-feet)	Total Demand (acre-feet)	Unacc. / Distr. (acre-feet)						
1996	14,990	257.3	4,321	0	0	0	0	311.0	257.3	4,321	4,321	0	
1998	15,400	108.7	1,875	600	1,295	1,895	225	311.0	231.6	3,995	3,995	0	
2025	27,000	279.6	8,455	0	0	0	563	274.0	298.2	9,018	9,018	-982	

* Represents Maximum Contract Amount

Notes: Unaccounted beneficial uses are added to distribution system losses and shown under Distribution system loss. 2025 system losses based on 1998 system loss rate. The City's population includes 5,000 inmates at the Pleasant Valley State Prison.

COALINGA, CITY OF

Contractor ID: 203182

West San Joaquin

Water Needs Assessment

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

Date: 6/2/2003 8:27:14 A

Contractor's Water Supply Sources and Demands												
Timeframe 1	Surface Water Supply						Groundwater Supply					Total Supply 13
	Reference Delivery 2	USBR Total Deliv/Max 3	SWP 4	Local 5	Local Source 6	Trsfir / Rlm / Recycle In 7	Trsfir / Out 8	District 9	Private 10	Safe Yield 11	Recharge 12	
1996	10,000 *	4,321	0	0	0	0	0	0	0	0	0	4,321
1998	10,000 *	3,995	0	0	0	0	0	0	0	0	0	3,995
2025	10,000 *	10,000	0	0	0	0	0	0	0	0	0	10,000
												Maximum Productive Acres: 34,538
Contractor's Agricultural Water Demands												

Maximum Productive Acres: 34,538

Contractor's Agricultural Water Demands

Timeframe	Crop Water Requirement (acre-feet) 15	District Irrig. Efficiency (%) 16	Effective Precip (acre-feet) 17	Reference Effective Precip (acre-ft) 18	Reference		USBR Net		Average		Reference		Total Ag Demand (acre-feet) 26
					Calculated	Net Crop Water Req (acre-feet) 19	Calculated	Crop Water Req (acre-feet) 20	Irrigated Acres (acres) 21	Irrigated Acres (acres) 22	Calculated FDR (AF/acre) 23	Conveyance Loss (acre-feet) 25	
1996													
1998													
2025													

Contractor's M&I Water Demands

Timeframe 1	Residential Water Demand			Nonresidential Water Demand			Loss		Ref Urban Per Capita Dmd (gpcd) 35	Calc Urban Per Capita Dmd (gpcd) 36	Total M&I Demand (acre feet) 37	Total Ag * M&I Dmd (acre-feet) 38	Unmet Demand (acre-feet) 39
	Population 28	Per Capita Demand (gpcd) 29	Total Demand (acre-feet) 30	Industrial (acre-feet) 31	Comm / Instlt. (acre-feet) 32	Total Demand (acre-feet) 33	Unacc. / Distr (acre-feet) 34						
1996	14,990	257.3	4,321	0	0	0	0	0	311.0	257.3	4,321	4,321	0
1998	15,400	108.7	1,875	600	1,295	1,895	225	225	311.0	231.6	3,995	3,995	0
2025	27,000	279.6	8,455	0	0	0	563	563	274.0	298.2	9,018	9,018	-982

* Represents Maximum Contract Amount

Note: Unaccounted beneficial uses are added to distribution system losses and shown under Distribution system loss. 2025 system losses based on 1998 system loss rate. The City's population includes 5,000 inmates at the Pleasant Valley State Prison.

Division: West San Joaquin

Water Needs Assessment

District:

Date: 3/8/01

Agricultural and M&I Water Supply

COALINGA, CITY OF

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

Contractor's Water Supply Sources and Quantities (acre-feet)													
Timeframe	Reference Delivery	Surface Water Supply						Groundwater Supply					Total Supply
		USBR Total Deliv/Max	SWP	Local	Local Source	Trsftr/Rtn		District	Private	Safe			
						/Recycle In	Out			Yield	Recharge		
1	2	3	4	5	6	7	8	9	10	11	12	13	
1996	10,000 *	4,321	0	0	0	0	0	0	0	0	0	4,321	
1998	10,000 *	3,995	0	0	0	0	0	0	0	0	0	3,995	
2025	10,000 *	10,000	0	0	0	0	0	0	0	0	0	10,000	
Contractor's Agricultural Water Demands												Maximum Productive Acres= 34,538	

Maximum Productive Acres= 34,538

Contractor's Agricultural Water Demands

Timeframe	Crop Water Requirement (acre-feet)	District Irrig. Efficiency (%)	Reference Effective Precip (acre-feet)	Calculated Net Crop Water Req (acre-feet)	USBR Net Crop Water Req (acre-feet)	Average Irrigated Acres	Reference Irrigated Acres	Calculated FDR (AF/acre)	USBR FDR (AF/acre)	Conveyance Loss (acre-feet)	Total Ag Demand (acre-feet)
1	15	16	18	19	20	21	22	23	24	25	26

1996
1998
2025

Contractor's M&I Water Demands

Timeframe	Residential Water Demand				Nonresidential Water Demand				Loss				Unmet Demand (acre-feet)
	Population	Per Capita Demand (gpcd)	Total Demand (acre-feet)	Industrial (acre-feet)	Comm/Inst (acre-feet)	Total Demand (acre-feet)	Unacc /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 (acre-feet)	
1	28	28	30	31	32	33	34	35	36	37	38	38	38
1996	14,990	257.3	4,321	0	0	0	0	311.0	257.3	4,321	4,321	4,321	0
1998	15,400	108.7	1,875	600	1,295	1,895	225	311.0	231.6	3,995	3,995	3,995	0
2025	27,000	279.6	8,455	0	0	0	0	274.0	279.6	8,455	8,455	8,455	-1,545

Notes: Unaccounted beneficial uses are added to distribution system losses and shown under Distribution system loss.

* 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.

HURON, CITY OF

Contractor ID: 203186

West San Joaquin

Water Needs Assessment

Contractor's Water Supply Sources and Quantities (acre-feet) Date: 5/25/2006 9:14:45

Contractor's Water Supply, Storage and Distribution												
Timeframe 1	Reference Delivery 2	Surface Water Supply					Groundwater Supply					Total Supply 13
		USBR Total Deliv/Max 3	SWP 4	Local 5	Local Source 6	Trsfr / Rlm / Recycle In 7	Trsfr / Out 8	District 9	Private 10	Safe Yield 11	Recharge 12	
1996	3,000 *	982	0	0	0	0	0	0	0	0	0	982
2025	3,000 *	3,000	0	0	0	0	0	0	0	0	0	3,000
Contractor's Agricultural Water Demands												
Maximum Productive Acres:												

Maximum Productive Acres:

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)
1	15	16	17	18	19	20	21	22	23	24	25	26
1996												0
2025												0

Contractor's M&I Water Demands

Timeframe	Residential Water Demand				Nonresidential Water Demand				Loss				Total Ag + M&I Dmd (acre-feet)	Unmet Demand (acre-feet)
	Population	Per Capita Demand (gpcd)	Total Demand (acre-feet)	Industrial (acre-feet)	Comm / Instl. (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)	Conveyance Loss (acre-feet)	Unmet Demand (acre-feet)		
1	28	29	30	31	32	33	34	35	36	37	38	39		
1996	5,608	75.9	477	311	114	425	80	311.0	156.3	982	982	0		
2025	12,810	76.0	1,090	710	260	970	206	274.0	157.9	2,266	2,266	-734		

* Represents Maximum Contract Amount

Notes: Unaccounted beneficial use is totaled with the distribution system loss. The total for both is shown under Distribution system losses in 2025 estimated to be 10%.

HURON, CITY OF

Contractor ID: 203186

West San Joaquin

Water Needs Assessment

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

Date: 10/14/2004 3:30:26

Contractor's Water Supply Sources and Quantities (2013-2015)												
Timeframe	Surface Water Supply						Groundwater Supply					Total Supply
	Reference Delivery	USBR Total Deliv/Max	SWP	Local	Local Source	Trsf / Rlm / Recycle In	Trsf / Out	District	Private	Safe Yield	Recharge	
1	2	3	4	5	6	7	8	9	10	11	12	13

1996	3,000 *	982	0	0	0	0	0	0	0	0	0	982
2025	3,000 *	3,000	0	0	0	0	0	0	0	0	0	3,000

Maximum Productive Acres:

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	Reference Irrigated 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

1996		0										0
2025												

Contractor's M&I Water Demands

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

1996	5,608	75.9	477	311	114	425	80				311.0	156.3	982	982	0
2025	12,810	76.0	1,090	710	260	970	206				274.0	157.9	2,266	2,266	-734

* Represents Maximum Contract Amount

Notes: Unaccounted beneficial use is totaled with the distribution system loss. The total for both is shown under Distribution system loss. Distribution system losses in 2025 estimated to be 10%.

HURON, CITY OF

Contractor ID: 203186

West San Joaquin

Water Needs Assessment

Contractor's Water Supply Sources and Quantities (acre-feet) Date: 6/2/2003 8:27:14 A.

Timeframe	Surface Water Supply						Groundwater Supply				Total Supply	
	Reference Delivery	USBR Total Deliv/Max	SWP	Local	Local Source	Trslr / Rtm / Recycle In	Trslr / Out	District	Private	Safe Yield		Recharge
1	2	3	4	5	6	7	8	9	10	11	12	13

1996	3,000	982	0	0	0	0	0	0	0	0	0	982
2025	3,000	3,000	0	0	0	0	0	0	0	0	0	3,000

Maximum Productive Acres:

Contractor's Agricultural Water Demands

Timeframe	Crop Water Requirement (acre-feet)	District Irrig. Efficiency (%)	Effective Precip (acre-feet)	Reference Effective Precip (acre-ft)	Reference		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)
					Net Crop Water Req (acre-feet)	Water Req (acre-feet)						

0

Contractor's M&I Water Demands

Timeframe	Residential Water Demand			Nonresidential Water Demand			Loss	Ref Urban Per Capita Dmd (gpcd)	Calc 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)	Comm / Instlt (acre-feet)	Total Demand (acre-feet)						
1	28	29	30	31	32	33	34	35	36	37	38	39
1996	5,608	75.9	477	311	114	425	80	311.0	156.3	982	982	0
2025	12,810	76.0	1,090	710	260	970	206	274.0	157.9	2,266	2,266	-734

1996	5,608	75.9	477	311	114	425	80	311.0	156.3	982	982	0
2025	12,810	76.0	1,090	710	260	970	206	274.0	157.9	2,266	2,266	-734

* Represents Maximum Contract Amount

Unaccounted beneficial use is totaled with the distribution system loss The total for both is shown under Distribution system loss Distribution system losses in 2025 estimated to be 10%.

Division: West San Joaquin

Water Needs Assessment

District:

Date: 3/8/01

Agricultural and M&I Water Supply

HURON. CITY OF

Contractor's Water Supply Sources and Quantities (acre-feet)										
Timeframe	Surface Water Supply					Groundwater Supply				
	Reference Delivery	USBR Total Deliv/Max	SWP	Local	Local Source	Trsf/Retn /Recycle In	Trsf/Retn /Recycle Out	District	Private	Total Supply
1	2	3	4	5	6	7	8	9	10	13
1996	3,000 *	982	0	0	0	0	0	0	0	982
2025	3,000 *	3,000	0	0	0	0	0	0	0	3,000

Contractor's Agricultural Water Demands										
Timeframe	District		Reference		Calculated		USBR Net		Average	
	Crop Water Requirement (acre-feet)	Irrig. Efficiency (%)	Effective Precip (acre-feet)	Effective Precip (acre-ft)	Net Crop Water Req (acre-feet)	Calculated Net Crop Water Req (acre-feet)	Crop Water Req (acre-feet)	USBR FDR (AF/acre)	Irrigated Acres	Reference Irrigated Acres
1	15	16	17	18	19	20	21	22	23	24
1996	0									0
2025										

Contractor's M&I Water Demands										
Timeframe	Residential Water Demand			Nonresidential Water Demand			Loss		Total M&I Demand	
	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)	Loss (acre-feet)	Ag+ M&I Dmd (acre-feet)	Unmet Demand (acre-feet)
1	28	28	30	31	32	33	34		37	38
1996	5,608	75.9	477	311	114	425	80		982	0
2025	12,810	76.0	1,090	710	260	970	0		2,060	-940

Notes: Unaccounted beneficial use it totaled with the distribution system loss. The total for both is shown under Distribution system loss.

* 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.

WESTLANDS WD

Contractor ID: 203220

West San Joaquin

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

Date: 10/14/2004 3:30:27

Timeframe	Surface Water Supply							Groundwater Supply			Total Supply	
	Reference Delivery 2	USBR Total Deliv/Max 3	SWP 4	Local 5	Local Source 6	Trsr / Rtm / Recycle In 7	Trsr / Out 8	District 9	Private 10	Safe Yield 11		Recharge 12
1989	1,062,509	1,130,463	0	0		32,865	5,420	0	175,000	0	0	1,332,908
1996	0	0										0
1999	0	0										0
2025	1,150,000 *	1,150,000 *	0	0		0	4,938	0	175,000	0	0	1,320,062
Maximum Productive Acres: 532,700												

Contractor's Agricultural Water Demands

Maximum Productive Acres: 532,700

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)
1	15	16	17	18	19	20	21	22	23	24	25	26
1989	1,150,449	75	65,249	155,765	1,446,933	1,401,883	515,000	519,216	2.81	2.70	319	1,447,252
1996	1,229,209	75	163,895	163,895	1,420,419	1,420,419	546,315	546,315	2.60	2.60		
1999	1,269,094	75	163,754	163,754	1,473,787	1,473,787	545,847	545,847	2.70	2.70		
2025	1,366,756	85	181,830	181,830	1,394,030	1,394,030	606,100	606,100	2.30	2.30	319	1,394,349

Contractor's M&I Water Demands

Timeframe	Residential Water Demand			Nonresidential Water Demand			Loss		Ref Urban Per Capita Dmd (gpcd)	Calc Urban Per Capita Dmd (gpcd)	Total M&I Demand (acre-feet)	Total Ag + M&I Dmd (acre-feet)	Unmet Demand (acre-feet)
	Population 28	Per Capita Demand (gpcd)	Total Demand (acre-feet)	Industrial (acre-feet)	Comm / Instil. (acre-feet)	Total Demand (acre-feet)	Unacc. / Distr. (acre-feet)						
1989			30	31	32	33	34	35	36	37	38	39	114,344
1996						0	0	0		0	0	0	0
1999						0	0	0		0	0	0	0
2025						0	0	0		0	1,394,349	74,287	

* Represents Maximum Contract Amount

Notes: In order to limit this to an assessment of agricultural water needs, M&I water demand in the amount of 5,420 AF in 1989 and 4,938 AF in 2025 are shown as transfers out.

WESTLANDS WD

Contractor ID: 203220

West San Joaquin

Water Needs Assessment

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

Date: 5/25/2006 9:14:46

Contractor's Water Supply Source and Quantity												
Timeframe 1	Surface Water Supply						Groundwater Supply				Total Supply 13	
	Reference Delivery 2	USBR Total Deliv/Max 3	SWP 4	Local 5	Local Source 6	Trsfr / Rtm / Recycle In 7	Trsfr / Out 8	District 9	Private 10	Safe Yield 11		Recharge 12
1989	1,062,509	1,130,463	0	0	0	32,865	5,420	0	175,000	0	0	1,332,908
1996	0	0										0
1999	0	0										0
2025	*	*	0	0	0	0	4,938	0	175,000	0	0	170,062
2026	*	1,150,000	0	0	0	0	4,938	0	175,000	0	0	1,320,062
2030 Distrib Dist 2	*	2,675	0	0	0	4,198	0	0	0	0	0	6,873
Maximum Productive Acres: 332,700												
Contractor's Agricultural Water Demands												

Contractor's Agricultural Water Demands

Timeframe	Crop Water Requirement (acre-feet) 15	District Irrig. Efficiency (%) 16	Effective Precip (acre-feet) 17	Reference Effective Precip (acre-ft) 18	Calculated Net Crop Water Req (acre-feet) 19	USBR Net Crop Water Req (acre-feet) 20	Average Irrigated Acres (acres) 21	Reference Irrigated Acres (acres) 22	Calculated FDR (AF/acre) 23	USBR FDR (AF/acre) 24	Conveyance Loss (acre-feet) 25	Total Ag Demand (acre-feet) 26
1989	1,150,449	75	65,249	155,765	1,446,933	1,401,883	515,000	519,216	2.81	2.70	319	1,447,252
1996	1,229,209	75	163,895	163,895	1,420,419	1,420,419	546,315	546,315	2.60	2.60		
1999	1,269,094	75	163,754	163,754	1,473,787	1,473,787	545,847	545,847	2.70	2.70		
2025	1,366,756	85	181,830	181,830	1,394,030	1,394,030	606,100	606,100	2.30	2.30	319	1,394,349
2026	1,139,266	85	151,230		1,162,395		504,100		2.31		66,003	1,228,398
2030	10,560	85	1,330		10,859		3,598		3.02		343	11,202

Contractor's M&I Water Demands

Timeframe	Residential Water Demand				Nonresidential Water Demand				Loss				Total Ag + M&I Dmd (acre-feet) 38	Unmet Demand (acre-feet) 39
	Population 28	Per Capita Demand (gpcd) 29	Total Demand (acre-feet) 30	Industrial (acre-feet) 31	Comm / Instit. (acre-feet) 32	Total Demand (acre-feet) 33	Unacc. / Distr. (acre-feet) 34	Ref Urban Per Capita Dmd (gpcd) 35	Calc Urban Per Capita Dmd (gpcd) 36	Total M&I Demand (acre-feet) 37				
1989						0	0			0	1,447,252	114,344		
1996						0	0			0	0	0		
1999						0	0			0	0	0		
2025						0	0			0	1,394,349	1,224,287		
2026						0	0			0	1,228,398	-91,664		
2030						0	0			0	11,202	4,329		

* Represents Maximum Contract Amount

Notes: In order to limit this to an assessment of agricultural water needs, M&I water demand in the amount of 5,420 AF in 1989 and 4,938 AF in 2025 are shown as transfers out. 2030 is 2025 assessment for Westlands Distribution District #2 and includes an assignment of 4198 AF from Mercy Springs Water District, 5% conveyance loss and effective precipitation proportional to WWD 2025 estimate.

WESTLANDS WD

Contractor ID: 203220

West San Joaquin

Water Needs Assessment

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

Date 6/2/2003 8:27:14 A

Timeframe	Surface Water Supply				Groundwater Supply			
	Reference Delivery 2	USBR Total Deliv/Max 3	SWP	Local	Local Source	Trsf / Rtm / Recycle In	Trsf / Out	Total Supply 13
1								
1989	1,062,509	1,130,463	0	0	0	32,865	5,420	1,332,908
1996	0	0						0
1999	0	0						0
2025	1,150,000	1,150,000	0	0	0	0	4,938	1,320,062
Maximum Productive Acres: 332,709								

Contractor's Agricultural Water Demands

Timeframe	Crop Water Requirement (acre-feet)	District Irrig. Efficiency (%)	Effective Precip (acre-feet)	Reference Effective Precip (acre-ft)	Calculated		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)
					Net Crop Water Req (acre-feet)	Water Req (acre-feet)							
1	15	16	17	18	19	20	21	22	23	24	25	26	26
1989	1,150,449	75	65,249	155,765	1,446,933	1,401,883	515,000	519,216	2.81	2.70	319	1,447,252	1,447,252
1996	1,229,209	75	163,895	163,895	1,420,419	1,420,419	546,315	546,315	2.60	2.60			
1999	1,269,094	75	163,754	163,754	1,473,787	1,473,787	545,847	545,847	2.70	2.70			
2025	1,366,756	85	181,830	181,830	1,394,030	1,394,030	606,100	606,100	2.30	2.30	319	1,394,349	1,394,349

Contractor's M&I Water Demands

Timeframe	Residential Water Demand			Nonresidential Water Demand			Loss		Ref Urban Per Capita Dmd (gpcd)	Calc 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)	Comm / Insult. (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						0	0	0	0	0	1,447,252	114,344	114,344
1996						0	0	0	0	0	0	0	0
1999						0	0	0	0	0	0	0	0
2025						0	0	0	0	0	1,394,349	74,287	74,287

* Represents Maximum Contract Amount

Notes: In order to limit this to an assessment of agricultural water needs, M&I water demand in the amount of 5,420 AF in 1989 and 4,938 AF in 2025 are shown as transfers out.

Division: **West San Joaquin**

Water Needs Assessment

District:

Date: 3/8/01

Agricultural and M&I Water Supply

WESTLANDS WD

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

Contractor's Water Supply Sources and Quantities (Gallons/Year)												
Timeframe	Surface Water Supply							Groundwater Supply				
	Reference Delivery 2	USBR Total Deliv/Max 3	SWP 4	Local 5	Local Source 6	Trsfir/Recycle In 7	Trsfir/ Out 8	District 9	Private 10	Safe Yield 11	Recharge 12	Total Supply 13
1989	1,062,509	1,130,463	0	0	0	32,865	5,420	0	175,000	0	0	1,332,908
1996	0	0										0
1999	0	0										0
2025	1,150,000 *	1,150,000 *	0	0	0	0	4,938	0	175,000	0	0	1,320,062

Contractor's Agricultural Water Demands

Maximum Productive Acres= 545,268

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)	USBR FUR (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	1,150,449	75	65,249	155,765	1,446,933	1,401,883	515,000	519,216	2.81	2.70	319	1,447,252
1996	1,229,209	75	163,895	163,895	1,420,419	1,420,419	546,315	546,315	2.60	2.60		
1999	1,269,094	75	163,754	163,754	1,473,787	1,473,787	545,847	545,847	2.70	2.70		
2025	1,366,756	85	181,830	181,830	1,394,030	1,394,030	606,100	606,100	2.30	2.30	319	1,394,349

Contractor's M&I Water Demands

Timeframe	Residential Water Demand				Nonresidential Water Demand				Loss			
	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)	Ref Urban Per Capita Dmd (gpcd)	Calc Urban Per Capita Dmd (gpcd)	Total MCI Demand (acre-feet)	Ag+ MCI Dmd (acre-feet)	Unmet Demand (acre-feet)
1	28	29	30	31	32	33	34	35	36	37	38	39
1989						0	0			0	1,447,252	114,344
1996						0	0			0	0	0
1999						0	0			0	0	0
2025						0	0			0	1,394,349	74,287

Notes: In order to limit this to an assessment of agricultural water needs, M&I water demand in the amount of 5,420 AF in 1989 and 4,938 AF in 2025 are shown as transfers out.

* Represents Maximum Contract Amount

SAN LUIS UNIT

FINAL ENVIRONMENTAL ASSESSMENT

INTERIM CONTRACT RENEWAL 2010-2013

Appendix E
Threatened and Endangered Species List

February 2010

U.S. Fish & Wildlife Service

Sacramento Fish & Wildlife Office

**Federal Endangered and Threatened Species that Occur in
or may be Affected by Projects in the Counties and/or
U.S.G.S. 7 1/2 Minute Quads you requested**

Document Number: 100222094718

Database Last Updated: December 1, 2009

Quad Lists

Listed Species

Invertebrates

- Branchinecta longiantenna
 - o longhorn fairy shrimp (E)
- Branchinecta lynchi
 - o vernal pool fairy shrimp (T)
- Desmocerus californicus dimorphus
 - o valley elderberry longhorn beetle (T)
- Lepidurus packardii
 - o vernal pool tadpole shrimp (E)

Fish

- Hypomesus transpacificus
 - o delta smelt (T)
- Oncorhynchus mykiss
 - o Central Valley steelhead (T) (NMFS)

Amphibians

- Ambystoma californiense
 - o California tiger salamander, central population (T)
 - o Critical habitat, CA tiger salamander, central population (X)
- Rana aurora draytonii

- o California red-legged frog (T)

Reptiles

- Gambelia (=Crotaphytus) sila
 - o blunt-nosed leopard lizard (E)
- Thamnophis gigas
 - o giant garter snake (T)

Birds

- Gymnogyps californianus
 - o California condor (E)

Mammals

- Dipodomys ingens
 - o giant kangaroo rat (E)
- Dipodomys nitratoide exilis
 - o Critical habitat, Fresno kangaroo rat (X)
 - o Fresno kangaroo rat (E)
- Dipodomys nitratoide nitratoide
 - o Tipton kangaroo rat (E)
- Vulpes macrotis mutica
 - o San Joaquin kit fox (E)

Plants

- Caulanthus californicus
 - o California jewelflower (E)
- Cordylanthus palmatus
 - o palmate-bracted bird's-beak (E)
- Monolopia congdonii (=Lembertia congdonii)
 - o San Joaquin woolly-threads (E)

Proposed Species

Amphibians

- Rana aurora draytonii
 - o Critical habitat, California red-legged frog (PX)

Quads Containing Listed, Proposed or Candidate Species:

KETTLEMAN PLAIN (291A)

GARZA PEAK (291B)

STRATFORD (313A)

WESTHAVEN (313B)

KETTLEMAN CITY (313C)

HURON (314A)

GUIJARRAL HILLS (314B)

AVENAL (314C)

COALINGA (315A)

ALCALDE HILLS (315B)

CURRY MOUNTAIN (315C)

KREYENHAGEN HILLS (315D)

BURREL (336B)

VANGUARD (336C)

FIVE POINTS (337A)

WESTSIDE (337B)

HARRIS RANCH (337C)

CALFLAX (337D)

TRES PECOS FARMS (338A)

LILLIS RANCH (338B)

DOMENGINE RANCH (338D)

SAN JOAQUIN (359C)

HELM (359D)

TRANQUILLITY (360A)

COIT RANCH (360B)

LEVIS (360C)

CANTUA CREEK (360D)

CHANEY RANCH (361A)

CHOUNET RANCH (361B)

TUMEY HILLS (361C)

MONOCLINE RIDGE (361D)

FIREBAUGH (381C)

DOS PALOS (382B)

HAMMONDS RANCH (382C)

BROADVIEW FARMS (382D)

CHARLESTON SCHOOL (383A)

ORTIGALITA PEAK NW (383B)

ORTIGALITA PEAK (383C)

LAGUNA SECA RANCH (383D)

LOS BANOS VALLEY (384A)

VOLTA (403C)

LOS BANOS (403D)

SAN LUIS DAM (404D)
