2015

CITY OF BRAWLEY
2015 URBAN WATER MANAGEMENT PLAN
-DRAFT PLAN-

CITY OF BRAWLEY

180 S. Western Avenue

Brawley , CA 92227

PREPARED BY LEE & RO, INC. | 1199 S. Fullerton Rd. City of Industry, CA 91748 Tel: (626) 912-3391

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City of Brawley

2015 Urban Water Management Plan

Contact Sheet

Date plan submitted to the Department of Water Resources: **July 1, 2016**

Name of person preparing this plan:

Derek Kurtti, P.E.

LEE & RO, Inc.
1199 S. Fullerton Ave.
City of Industry, CA 91748

Phone: **(626) 912-3391**

Fax: **(626) 912-2015**

Email address: **derek.kurtti@lee-ro.com**

The water supplier is a: **Municipality, Retailer**

Utility service provided by the water supplier includes: **Water and Sewer**

Is this agency a Bureau of Reclamation contractor? **No**

Is this agency a State Water Project contractor? **No**

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Chapter 1 – Introduction and Overview

1.1 Background and Purpose

1.1.1 Background

This UWMP follows the outline order of *2015 Urban Water Management Plans: Guidebook for Urban Water Suppliers* Final, Jan 2016, and includes the following:

- Chapter 1 – Introduction and Purpose
- Chapter 2 – Plan Preparation
- Chapter 3 – System Description
- Chapter 4 – System Water Use
- Chapter 5 – SB X7-7 Baseline and Targets
- Chapter 6 – System Supplies
- Chapter 7 – Water Supply Reliability
- Chapter 8 – Water Shortage Contingency Planning
- Chapter 9 – Demand Management Measures
- Chapter 10 – Plan Adoption, Submittal, and Implementation

The Urban Water Management (UWMP) Act (California Water Code §10610 et seq.) requires urban water suppliers to report, describe, and evaluate:

- Water deliveries and uses
- Water supply sources
- Efficient water uses
- Demand Management Measures (DMM), including implementation strategy and schedule

In addition, the Water Conservation Bill of 2009 requires urban water suppliers to report in their UWMPs base daily per capita water use (baseline), urban water use target, interim urban water use target, and compliance daily per capita water use.

The UWMP Act directs water agencies in carrying out their long-term resource planning responsibilities to ensure adequate water supplies are available to meet existing and future demands (CWC 10612 (b)). Urban water suppliers (see definition in Part II, Section P: Glossary) are required to assess current demands and supplies over a 20-year planning horizon and consider various drought scenarios.

The UWMP Act also requires that water shortage contingency planning and drought response actions be included in a UWMP. UWMPs are to be prepared every five years by urban water suppliers with 3,000 or more service connections or supplying 3,000 or more acre-feet of water per year. Public and private utilities with multiple service areas within their districts should follow the guidelines.

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- Public utilities above the UWMP submittal threshold should include all service areas regardless of size.
- For private utilities, if the district is above the threshold, then all the service areas within that district should be included. If the utility district is below the UWMP threshold, an UWMP is not required for that district.
- One urban water use target should be determined for each UWMP.

The normal UWMP submittal cycle requires that they be prepared and submitted in December of years ending in five and zero. However, because of recent changes in UWMP requirements, State law has extended the deadline for the 2010 UWMP to July 31, 2011. Although submitted in 2011, 2010 UWMPs will be referred to as 2010 UWMPs because they include 2010 water data and to retain consistency with the five- year submittal cycle.

Based on legislative changes resulting from the November 2009 passage of SBX7-7 (hereafter referred to as the Water Conservation Bill of 2009), development of UWMPs will also enable water agencies and, in turn, the State of California to set targets and track progress toward decreasing daily per capita urban water use throughout the state.

An UWMP, including discussion of the status of a water supplier's implementation of DMMs, is required for an urban water supplier to be eligible for a water management grant or loan administered by DWR, the State Water Resources Control Board (State Water Board), or the Delta Stewardship Council (CWC §10631.5(a)). A current UWMP must also be maintained by the water supplier throughout the term of any grant or loan administered by DWR.

Beginning in 2016, changes to California law require water suppliers to comply with water conservation requirements established by the Water Conservation Bill of 2009 in order to be eligible for State water grants or loans. These changes are discussed further in Part II, Section B: Changes in UWMP Requirements Since 2005.

1.1.2 Purpose of the UWMP

The purpose of this report is to review the overall supply and demand of water for the City of Brawley, identify any possible deficiencies in the water supply for the next 20 years (2015-2035) and to confirm compliance with the 2015 interim water usage goal**.** There is no foreseeable water shortage in the City of Brawley for the next 20 years. The City of Brawley uses Colorado River water that can supply the City with sufficient water to meet all projected demand. Thus the City is not affected by climatic related supply shortages. There was a 10-year drought on the Colorado River (Oct 1999 - 2010); however, storage on the river was sufficient and the crucial elevation of 1075 was not reached. In addition, Imperial Irrigation District (IID) has senior water rights to Colorado River water and ranks urban supply higher than the agricultural supply; so even if the drought on the Colorado River were to impact IID's supply, the City's use would not be impacted.

An awareness of the importance of a sound water policy is important in recognizing that water in California is becoming a stretched resource. In fact, California's use of 5.2 MAFY of Colorado River water exceeds its right to 4.4 MAFY. This led to the Quantification Settlement Agreement of 2010 (QSA), under which the amount of Colorado River water available to California and to the Imperial Valley was quantified.

Land use decisions based in part upon water resources have significant effects on the physical, social, and economic character of the county. Although the UWMP is concerned with long-range goals and objectives, attention should also be given to currently existing conditions and issues. This approach will enable the City to face important issues today, thereby avoiding problems in the future.

In addition to the statement of goals, objectives and policies, the UWMP includes discussions, data, and water conservation programs which provide for the prudent and conscientious management and utilization of water resources for future development in the City. The implementation of the UWMP is meant to assure that water resources are conserved and utilized as efficiently as possible, and to provide for the long-term viability and availability of this precious resource.

**** The following paragraphs in italicized text are verbiage from the law.*

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Chapter 2 – Plan Preparation

2.1 Basis for Preparing a Plan

"Urban water supplier" means a supplier either publicly or privately owned, providing water for municipal purposes either directly or indirectly to more than 3,000 customers or supplying more than 3,000 acre-feet of water annually. An urban water supplier includes a supplier or contract for water, regardless of the basis of right, which distributes or sells for ultimate resale to customers. This part applies only to water supplied from public water systems… (10617).

In accordance with the CWC, urban water suppliers with 3,000 or more service connections or supplying 3,000 or more acre-feet of water per year are required to prepare an UWMP every five years. The City of Brawley supplies over 3,000 connections and over 3,000 acre-feet of water per year. This report has been completed in compliance with the CWC requirements.

2.1.1 Public Water Systems

The plan, or amendments to the plan, submitted to the department … shall include any standardized forms, tables, or displays specified by the department (10644(a)(2)).

In accordance with CWC §10644(a)(2), the 2015 UWMP will use standardized data tables and SB X7-7 verification forms specified in the **Appendix D** of the *Guidebook for Urban Water Supplies*.

2.1.2 Agencies Serving Multiple Service Areas/Public Water Systems

In accordance with CWC §10617 the City of Brawley qualifies as an Urban Water Retailer based on its supplying more than 3,000 service connections and more than 3,000 acre-feet of water per year; see **Figure 1** for further information.

Table 2-1 Retail Only: Public Water Systems			
Public Water System Number	**Public Water System Name**	**Number of Municipal Connections 2015**	**Volume of Water Supplied 2015**
1310001	City of Brawley	5,490	1,538
	TOTAL	5490	1,538
NOTES: Units in Million Gallons (MG)			

Figure 1: Table 2-1 Retail Only: Public Water Systems

2.2 Individual/Regional Planning Compliance

The City of Brawley is reporting solely on its own service area and is not a member of a Regional Alliance, see **Figure 2**. IID is the regional supplier from which the City of Brawley receives its water supply. In past years IID would prepare a regional UWMP which included the City of Brawley amongst

others. Beginning in 2010 IID no longer prepared a UWMP and the cities it served were required to prepare and submit their own individual UWMP's.

Table 2-2 Plan Identification (Select One)		
☑	Individual UWMP	
☐	Regional UWMP (RUWMP) *(checking this triggers the next line to appear)*	
	Select One:	
	☐	RUWMP includes a Regional Alliance
	☑	RUWMP does not include a Regional Alliance
NOTES:		

Figure 2: Table 2-2 Plan Identification

2.3 Fiscal or Calendar Year and Units Measure

Urban retail water suppliers…may determine the targets on a fiscal year or calendar year basis (1608.20(a)(1)).

Table 2-3: Agency Identification	
Type of Agency (select one or both)	
☐	Agency is a wholesaler
☑	Agency is a retailer
Fiscal or Calendar Year (select one)	
☑	UWMP Tables Are in Calendar Years
☐	UWMP Tables Are in Fiscal Years
If Using Fiscal Years Provide Month and Day that the Fiscal Year Begins (dd/mm)	
Units of Measure Used in UWMP (select from Drop down)	
Unit	MG
NOTES: Million Gallons	

Figure 3: Table 2-3: Agency Identification

2.3.1 Fiscal or Calendar Year

The City of Brawley reports on the calendar year basis. The UWMP data is consistent with the data submitted in other reports to the state. This 2015 UWMP includes the water use and planning data for the entire calendar year of 2015.

2.4 Coordination and Outreach

An urban water supplier that relies upon a wholesale agency for a source of water shall provide the wholesale agency with water use projections from that agency for that source of water in five-year increments to 20 years or as far as data is available. The wholesale agency shall provide information to the urban water supplier for inclusion in the urban water supplier's plan that identifies and quantifies, to the extent practicable, the existing and planned sources of water as required by subdivision (b), available from the wholesale agency to the urban water supplier over the same five-year increments, and during various water-year types in accordance with subdivision (c). An urban water supplier may rely upon water supply information provided by the wholesale agency in fulfilling the plan informational requirements of subdivisions (b) and (c) (10631(j)).

The plan, or amendments to the plan, submitted to the department … shall include any standardized forms, tables, or displays specified by the department (10644(a)(2)).

2.4.1 Wholesale and Retail Coordination

The City of Brawley's water usage is, and always has been, well below the available supply and has therefore never provided projection information to the IID. Going forward for all future years, the City will ensure that the basic projected usage information is provided to IID to allow both agencies to properly analyze current and future water usage.

2.4.2 Coordination with Other Agencies and the Community

Each urban water supplier shall coordinate the preparation of its plan with other appropriate agencies in the area, including other water suppliers that share a common source, water management agencies, and relevant public agencies, to the extent practicable (10620(d)(2)).

Development of this plan was coordinated with the Imperial Irrigation District, City Staff, the Mayor's Office, City Planning, Fire, Building, Police, and local Emergency Services offices. **Figure 4** identifies the Water Supplier(s) who are notified of projected water uses by the City of Brawley.

Table 2-4 Retail Water Supplier Information Exchange
The retail supplier has informed the following wholesale supplier(s) of projected water use in accordance with CWC 10631.
Wholesale Water Supplier Name *(Add additional rows as needed)*
IMPERIAL IRRIGATION DISTRICT
NOTES:

Figure 4: Table 2-4 Retail Water Supplier Information Exchange

Drafts of the Management Plan will be distributed to Imperial Irrigation District, Imperial County Planning/Building and Public Works Departments, and the City of Brawley for review and revisions. The final draft was distributed in XXXX 2016 to staff of the Imperial Irrigation District; the cities of Brawley, Calexico, Imperial; and Imperial County for agency comments and recommendations. Comments and recommendations have been incorporated into the Management Plan. Copies were distributed to Imperial County Planning/Building and Public Works departments; Imperial Irrigation District Public Affairs; cities of Brawley, Calexico, Imperial; the public libraries of El Centro, Calexico, Brawley, and Imperial; and to others on request for public review.

Each urban water supplier shall encourage the active involvement of diverse social, cultural, and economic elements of the population within the service area prior to and during the preparation of the plan (10642).

Prior to adopting a plan, the urban water supplier shall make the plan available for public inspection and shall hold a public hearing thereon. Prior to the hearing, notice of the time and place of hearing shall be published within the jurisdiction of the publicly owned water supplier pursuant to Section 6066 of the Government Code. The urban water supplier shall provide notice of the time and place of hearing to any city or county within which the supplier provides water supplies. A privately owned water supplier shall provide an equivalent notice within its service area (10642).

The City of Brawley encourages community participation in its urban water management planning efforts. Copies of the draft plan are available at City Hall.

2.4.3 Notice to Cities and Counties

Every urban water supplier required to prepare a plan pursuant to this part shall, at least 60 days prior to the public hearing on the plan required by Section 10642, notify any city or county within which the supplier provides water supplies that the urban water supplier will be reviewing the plan and considering amendments or changes to the plan. The urban water supplier may consult with, and obtain comments from, any city or county that receives notice pursuant to this subdivision (10621(b)).

The City provides water to connections within its service boundary only. All those within the City's supply area have been notified in accordance with 10621(b).

The City published notice in the local newspaper of the availability of the draft UWMP for public inspection and stating the date and time of the public hearing to adopt the UWMP. The notice was published once a week for two successive weeks.

The hearing took place on June 7, 2016 at 7:00pm at:

City Council Chambers
383 Main Street
Brawley, CA 92227

Following the public meeting, a formal public hearing was held during the regular meeting of the City Council for review and comment on the draft plan before the City Council's approval.

The final plan, which was adopted by City Council on XXXX XX, 2016, was distributed to the cities of Brawley, Calexico, Calipatria, El Centro, Holtville, and Westmorland; Imperial County Planning/Building and Public Works departments; Imperial Irrigation District's Public Affairs; public libraries in the cities of El Centro, Calexico, Brawley, and Imperial; and to others upon request. The final plan was submitted to the California Department of Water Resources within 30 days of Council approval.

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Chapter 3 – System Description

Describe the service area of the supplier (10631(a)).

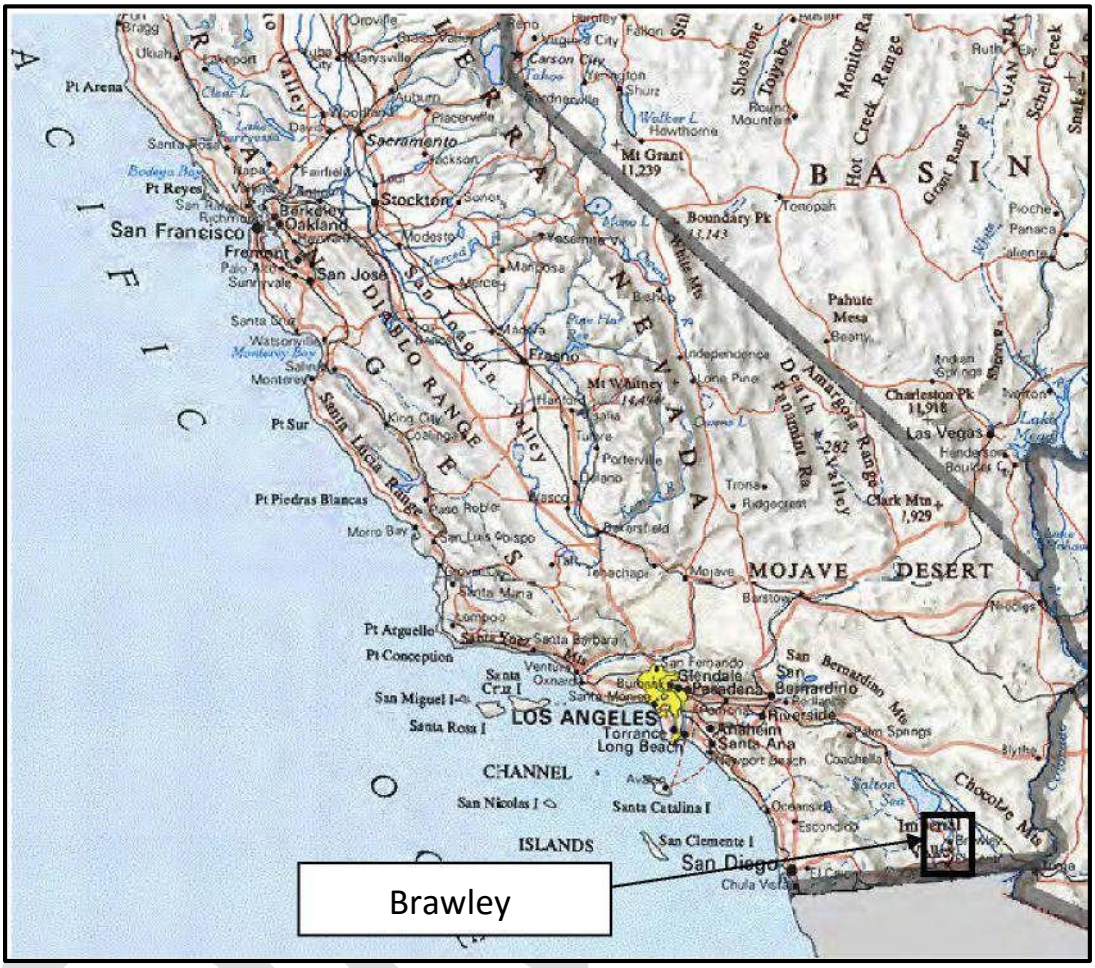

Figure 5: Vicinity Map for the City

3.1 General Description

The City of Brawley was founded in October of 1902 and was incorporated in February of 1908. The first settlers were Charles E. Guest, Edwin Mead and Earl Pound. The first building was the town site company office building which is now located on the property of Mr. J. F. Warner. The first bank was built on March First in 1904 and was called Imperial Valley Bank. The first church was the Methodist Episcopal, organized by Mr. H. C. Mullen of Imperial. The first grade school was erected in September, 1903, the first high school in 1909. In 1904 the Brawley Chamber of Commerce was chartered. In February of 1908 a petition was circulated to incorporate, and was signed by fifty citizens. The Brawley Airport was built in 1928. Brawley has grown slowly but consistently and on an economically sound basis. **Figure 5** shows the location of the city with respect to the State of California.

The City of Brawley is located at the intersection of Highways 86 and 78. The City of Brawley's total planning, which includes areas within the City boundary and the surrounding sphere of influence (SOI) area covers approximately 10,845 acres. Land uses within Brawley's incorporated boundaries include

residential, public facilities, commercial, industrial, business, open space, transportation, and agricultural use. **Figure 6** shows the City's boundary and SOI area.

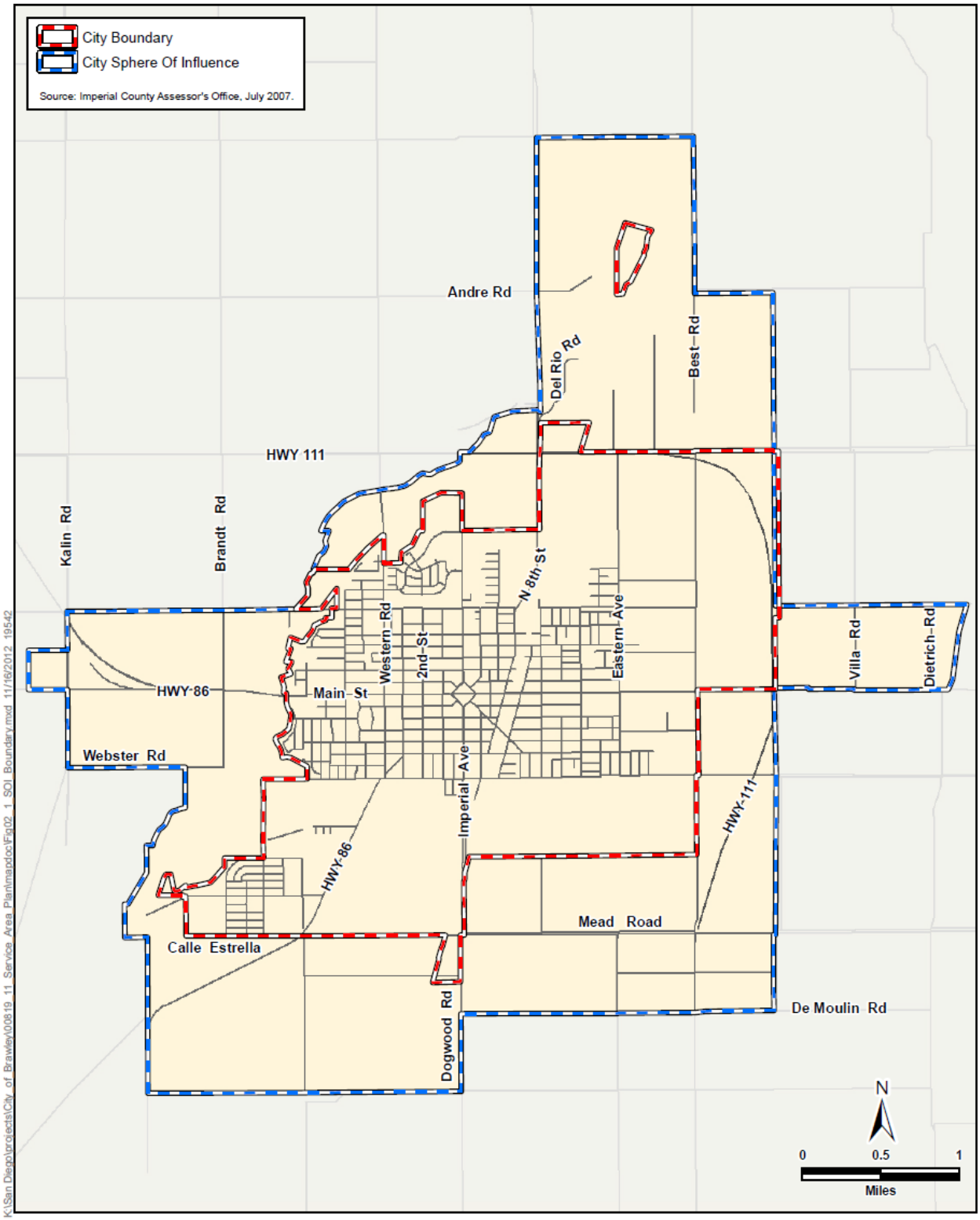

Figure 6 – City of Brawley Boundary and Sphere of Influence

The City of Brawley Urban Area has approximately 9,890 acres and surrounds the incorporated City of Brawley. The Brawley Urban Area is generally bounded on the west by the New River, Brandt Road, Kahn Road, Poe Subdivision and State Highway 86; on the north by Ward Road; on the east by Best Road, the Livesely Drain, and a line approximately one-half mile east of Best Road; and on the south by the Rockwood Canal, Mead Road, the Best Canal, Dogwood Road, and Shartz Road.

The City of Brawley is located in Imperial County, which is located in the southeast comer of California. It is bordered on the west by San Diego County, on the north by Riverside County, on the east by the Colorado River which is the California/Arizona boundary, and on the south by 84 miles of the International Boundary with the Republic of Mexico. Imperial County encompasses an area of 4,597 square miles or 2,942,080 acres. The Imperial Valley is an area within Imperial County that extends southward for 50 miles from the southern end of the Salton Sea to Mexico.

The Imperial Valley was created when the Colorado River formed a delta that isolated the Salton Trough from the Gulf of California. Subsequently, under desert conditions, the inland sea dried up. Later, the trough was occupied by lakes for various periods, and deposition into these lakes gave the valley its characteristic flat lands and fertile soils.

The geographic center of the Imperial Valley is one of the most productive agricultural areas in the world, despite the fact that it is in a very arid region. The general area of the Imperial Valley, also known as the Imperial Unit, is bounded on the north by the Salton Sea, on the south by the U.S. Mexico border, on the east generally by the East Highline Canal, and on the west generally by the Westside Main Canal.

Approximately fifty percent of lands in Imperial Valley are undeveloped and are under federal ownership and jurisdiction. One-fifth of the nearly 3 million acres in Imperial Valley are irrigated for agricultural purposes, most notably the areas known as Coachella Valley and the Imperial Valley. The Net irrigated agriculture area in 2013 consisted of 474,311 acres (see **Appendix A – 2013 IID Area Receiving Report**). The developed area within the Imperial Valley represents less than one percent of the total amount of land. Approximately seven percent of Imperial Valley is within the boundaries of the Salton Sea.

A significant geographical feature in the Imperial Valley is the Salton Trough, which contains the Salton Sea and the Imperial Valley, and has been evolving for millions of years. It is a rift in the earth's crustal plates. The East Pacific Rise is the boundary between the Pacific and North American Plates. It extends up the Gulf of California by a series of spreading centers with strike slip faults. The thinning of the crust from the slow but continuous widening of the Salton Trough causes the earth's magma to rise closer to the surface and generates abnormally high heat flow, which in turn heats deep ground waters.

The trough is a structural extension of the Gulf of California. In prehistoric times it contained the ancient Lake Cahuilla (not to be confused with the present Lake Cahuilla which is located at the terminus of the Coachella Branch of the All-American Canal).

3.1.1 Description of City Facilities

3.1.1.1 City of Brawley Distribution System

Brawley's water system is comprised of a water treatment plant, three storage facilities, two pump stations, and approximately 75 miles of 4 to 24 inch water mains. The City's current water treatment plant has a design capacity of 15 million gallons per day (MGD) to accommodate peak daily use. The plant is expandable to 30 MGD to accommodate future growth.

The Brawley Water Treatment Plant went on line in June 2000. The treatment facility is designed to produce 15 million gallons per day with the capability to expand to 30 million gallons per day. The treatment incorporates several processes including pumping, chemical injection, primary sedimentation, flocculation, filtration, and finish water storage to ensure the city is provided with a reliable supply of safe, clean drinking water. Currently the treatment facility is producing an average of 8.5 million gallons per day of potable water (9,479 acre-feet per year). Total supply is regulated only by the total amount of water that can be treated at the water treatment plant. The **Figure 7** below shows the 2015 distribution system flows.

2015 Distribution System Flows		
Parameter	**MGD**	**GPM**
Annual Daily Average	4.22	6071.5
Maximum Day	6.94	9,993.6
Minimum Day	0.87	1,252.8
Maximum Day Peak Hour	13.46	9,347.2
Minimum Day Peak Hour	2.71	1,881.9
Maximum Month Average	184.76	128,308.6
Minimum Month Average	67.39	46,789.6

Figure 7: 2015 Distribution System Flows

For finished water storage the City has three separate (3) MG above ground storage tanks. Two of the tanks are at the water plant, and one is located at the airport.

The City of Brawley takes its water from Mansfield Canal off the Central Main Canal. The capacity of the Mansfield Canal is 30 CFS (19 MGD). Water flows from the canal through a 54 inch pipeline into raw water storage ponds No. 5 and No. 6, which have capacities of 21.2 and 11.6 MG respectively. Water flows from the ponds to the raw water intake. The raw water pump station consists of three constant speed pumps with a capacity of 4,000 gpm each and two variable speed pumps with a capacity of 4000 gpm each. The treatment plant is permitted to treat 15 MDG and has a hydraulic capacity of 22.5 MGD. The pumps deliver water to the flash mixer where ferric chloride is added to coagulate the suspended solids. The water then proceeds to the two flocculation basins in parallel. Three stage flocculation is provided. The flow continues to two sedimentation basins where the floc is settled. Filtration is provided with four conventional dual media, anthracite and sand, gravity filters, with a surface area of 576 sqft.

per filter. Filters are designed with a filter to waste system and air scour during the backwash. Backwash water flows by gravity to two backwash recycle ponds. The supernatant is returned to the raw water ponds. Inactivation with gas chlorination is provided in three clear wells with a combined capacity of 10 MG. The city incorporates a comprehensive water quality program originating at the treatment facility and on through its pumping and distributions systems to ensure that all regulatory requirements are met. Overall the treatment train reduces the NTU from approximately 20 NTU from the raw water to less than 0.03 NTU flowing into the finished clear water reservoirs.

The removal and inactivation requirements for the plant are 4 log virus reduction and 3 log Giardia reduction. The plant is given 2.0 log virus removal credit through filtration and 2.5 log Giardia removal credit. Therefore it is required to achieve a 0.5 log Giardia inactivation. The plant can achieve this inactivation requirement by maintaining 0.3 mg/l of chlorine residual and the plant effluent and could achieve an additional log inactivation if required.

The City samples the influent raw water for turbidity and the presence of coliforms. Information from the City of Brawley indicates that the influent turbidity averages between 15 and 58 NTU. The highest influent turbidities appear to occur in the month of July every year.

3.1.1.2 Land Use

The Imperial Valley is predominantly an agricultural area. Agricultural development in the Imperial Valley began at the turn of the twentieth century and now includes approximately 475,000 acres of irrigated land that support a $1billion-plus annual local agricultural economy. Imperial Irrigation District is the regional water supplier in the Imperial Valley, delivering Colorado River flows to all agricultural lands and urban water retailers within its water service area. Imperial Irrigation District operates open channel gravity flow irrigation and drainage systems and continually strives to develop innovative ways to improve its operations, increase reliability, and to conserve water.

While the agriculture-based economy is well-established, land use is expected to vary somewhat over the coming years as urbanization and growth occur adjacent to existing urban areas. In addition, development of renewable and geothermal energy in rural areas is expected.

3.1.1.3 Current Land Use

Due to contractual restrictions related to IID's Colorado River entitlement, total farmable acres remain fairly constant and total net acres cropped exhibit minor fluctuations as shown on **Figure 8** below. Over the past several years cropping patterns have remained relatively constant with variations in forage crop acreage occurring as a result of market price fluctuations, production cost factors, and insect/disease pressures.

Total Farmable Area within the Service Area				
	2013	2012	2011	2010
NET IRRIGATED AREA	417,668	432,555	440,564	431,638
TOTAL GARDEN CROPS	99,615	100,674	97,075	95,579
TOTAL FIELD CROPS	336,045	415,130	376,895	351,966
TOTAL PERMANENT CROPS	20,512	21,294	21,851	20,996

Figure 8: Total Farmable Area within the Service Area

More than 120 types of crops are currently grown. In addition, a number of feedlots and dairies located in the Valley have significant economic impact. In 2009, based on acreage, Imperial Valley's top twelve crops were alfalfa, wheat, Bermuda grass, Sudangrass, lettuce, sugar beets, carrots, kleingrass, broccoli, onions, melons and sweet corn, representing nearly 90% of the cropped acreage. In the Imperial Valley, the total area farmed was 488,499 acres in1990, 481,151 acres in 1995, 479,000 acres in 2000, 473,903 acres in 2009, and 417,668 in 2013

Urban land uses within IID's Imperial Unit consist of cities, state prisons, a military base, geothermal plants, and other smaller industrial users. Most of the urban lands are concentrated in and around the incorporated and unincorporated cities with some small clusters of rural residences located away from the population centers. The land use plan map is provided on **Figure 10**.

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Imperial County Land Use Distribution (in Acres)			
IMPERIAL COUNTY Land Use Distribution (in Acres), 1985			
Irrigated (Agriculture)			
	Imperial Valley per County General Plan Current Farmable per IID (2013) Total Area Receiving Water from IID (2010)	512,163 473,311 520,000	
	Bard Valley (Including Reservation)	14,737	
	Palo Verde Valley	7,428	
	Total	534,328	(18.2%)
Developed			
	Incorporated	9,274	
	Unincorporated	8,754	
	Total	18,028	(0.6%)
Salton Sea**		211,840	(7.2%)
Desert/Mountains			
	Federal	1,459,926	
	State	37,760	
	Indian	10,910	
	Private	669,288	
	Total	2,177,884	(74.0%)
IMPERIAL COUNTY TOTAL		2,942,080	Acres

*All acreages are approximations and are, therefore, only for informational purposes.

**Elevation of 230 feet below mean sea level.

Source: Imperial County General Plan, County Overview-September 1985 (still current as of 2016),

Figure 9: Imperial County Land Use Distribution (in Acres)

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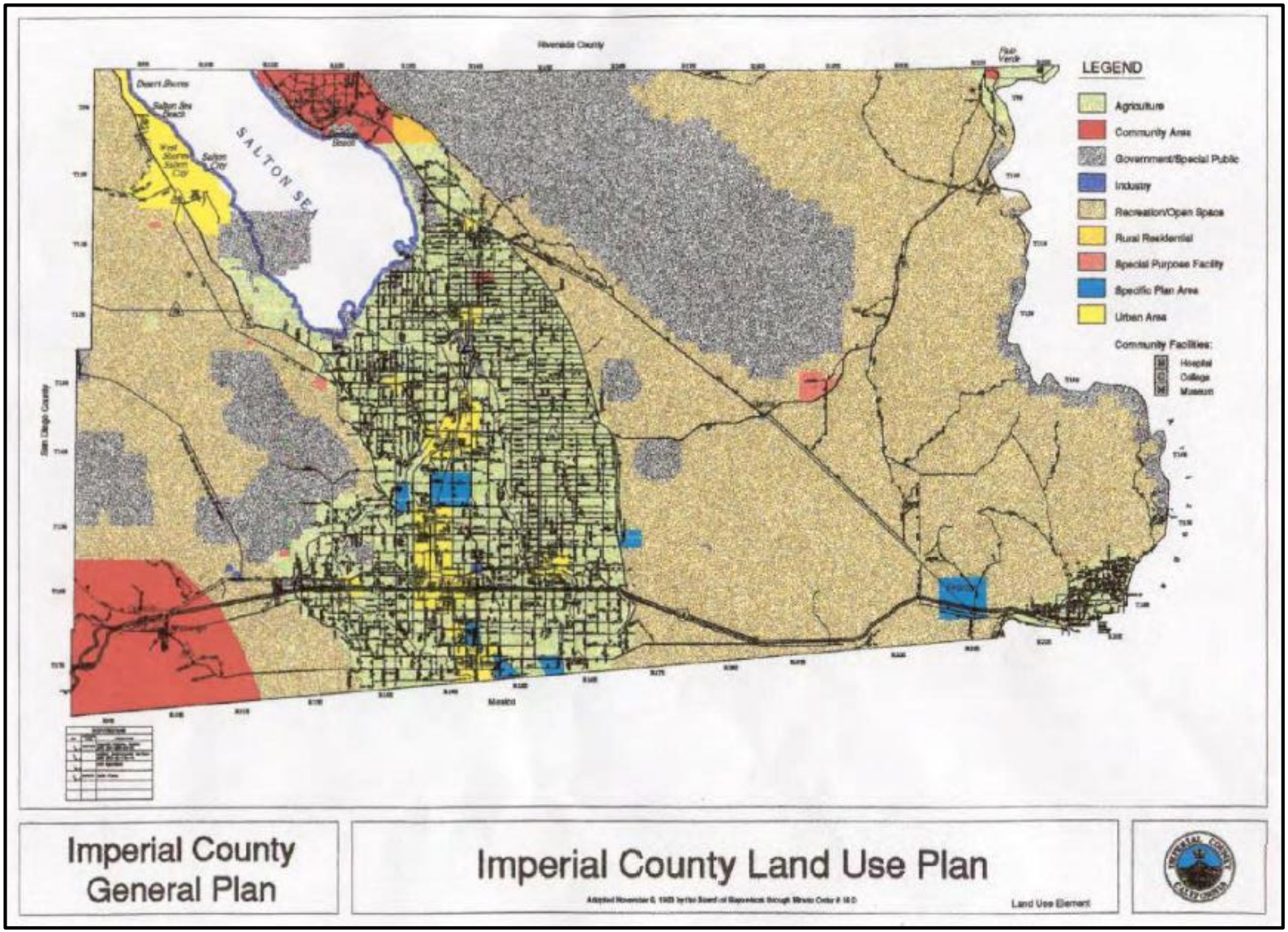

Figure 10: Imperial County Land Use Map

3.1.1.4 Future Land Use

The Imperial County General Plan, last updated in October 2015 and found in **Appendix C**, identifies urban areas surrounding the incorporated cities of Brawley with 9,890 acres, Calexico with 8,302 acres, Calipatria with 4,285 acres, El Centro with 14,288 acres, Holtville with 4,080 acres, Imperial with 8,480 acres, and Westmorland with 880 acres. Urban areas surrounding the unincorporated communities include Heber with 1,040 acres, Niland with 1,290 acres and Seeley with 1,520 acres. Urban areas for specific plans located within Imperial Unit boundaries include: East Border Crossing Specific Plan area with 1,700 acres, Holtville Air Strip Specific Plan area with 1,830 acres, Mesquite Lake Specific Plan area with 5,760 acres (9 sq miles), and Heber Specific Plan area with 4,770 acres. Some of these designated urban areas have been developed and some have not. Some of these areas could possibly complete developments in the future.

The total urban area surrounding cities and communities located within the Imperial Unit is 52,960 acres or 7.6 percent of the Imperial Unit area. The majority of these lands are currently farmed. Four Specific Plan Areas within the Imperial Unit are designated for possible development. The total area within the four Specific Plan Areas is 14,060 acres or 2.0 percent of the Imperial Unit area. Thus, total combined (actual plus projected) urban area surrounding cities and communities and for the four Specific Plan Areas is 67,020 acres or 9.6 percent of the Imperial Unit area.

Any urban areas yet to be developed will be characterized by a full level of urban services, in particular, public water and sewer systems, and will contain or propose a broad range of residential, commercial, and industrial uses. It is anticipated that most urban developments that are yet to be developed will eventually be annexed or incorporated into existing cities, and provide the full range of public infrastructure normally associated with municipalities such as public sewer and water, drainage improvements, streetlights, fire hydrants, and fully improved paved streets with curbs and sidewalks that are consistent with city standards.

Trends in land use point to an increase in the development of existing urban areas to provide residential capacity for an increased population. With development of existing urban areas, associated increases in service and infrastructure will follow. Even so, total urban land use in the years 2010 through 2030 will remain small in comparison to agriculture land use within the Imperial Unit.

3.2 Service Area Boundary Maps

3.2.1 City of Brawley Water

The City of Brawley receives raw water from the Imperial Irrigation District. Approximately three percent of the Imperial Irrigation District's untreated water is ultimately used for urban purposes and is provided indirectly to consumers through a variety of public and private treatment agencies. The city limit is shown on **Figure 12**.

The City of Brawley's sphere of influence is located within the Imperial Unit of the Imperial Irrigation District's Irrigation (IID) service area, shown on **Figure 11**. The 699,092 acre Imperial Unit serves the Imperial Valley including the urban areas for the cities of El Centro, Calexico, Imperial and Brawley and

approximately a quarter of Imperial County's unincorporated area. In total, IID delivers water to an area of just over 520,000 acres, including cities, cemeteries, schools, parks, golf courses, etc. in addition to the irrigated land. The Imperial Irrigation District's total service area, lying entirely within Imperial Valley, is divided into four units: Imperial, West Mesa, East Mesa, and Pilot Knob, with a gross acreage of approximately 1,062,000 acres.

A significant portion (around 97%) of the water demand in the Imperial Region is for irrigation. Agriculture is successful in this region for two reasons: 1) rich soils which have accumulated on the valley floor over thousands of years; and 2) the large quantity of water that is transported 80 miles from the Colorado River via the All-American Canal and distributed to farmlands by a complex system of smaller canals. Recycled water low in salinity could be used for agricultural; however, treatment and distribution of recycled wastewater low in salinity is not cost effective option at this time. Colorado River water salinity has averaged 760 parts per million over the last 20 years, and treated municipal wastewater is approximately 200-300 ppm higher in salinity. In addition, agricultural producers are averse to using treated wastewater due to consumer perceptions that the crops might be tainted.

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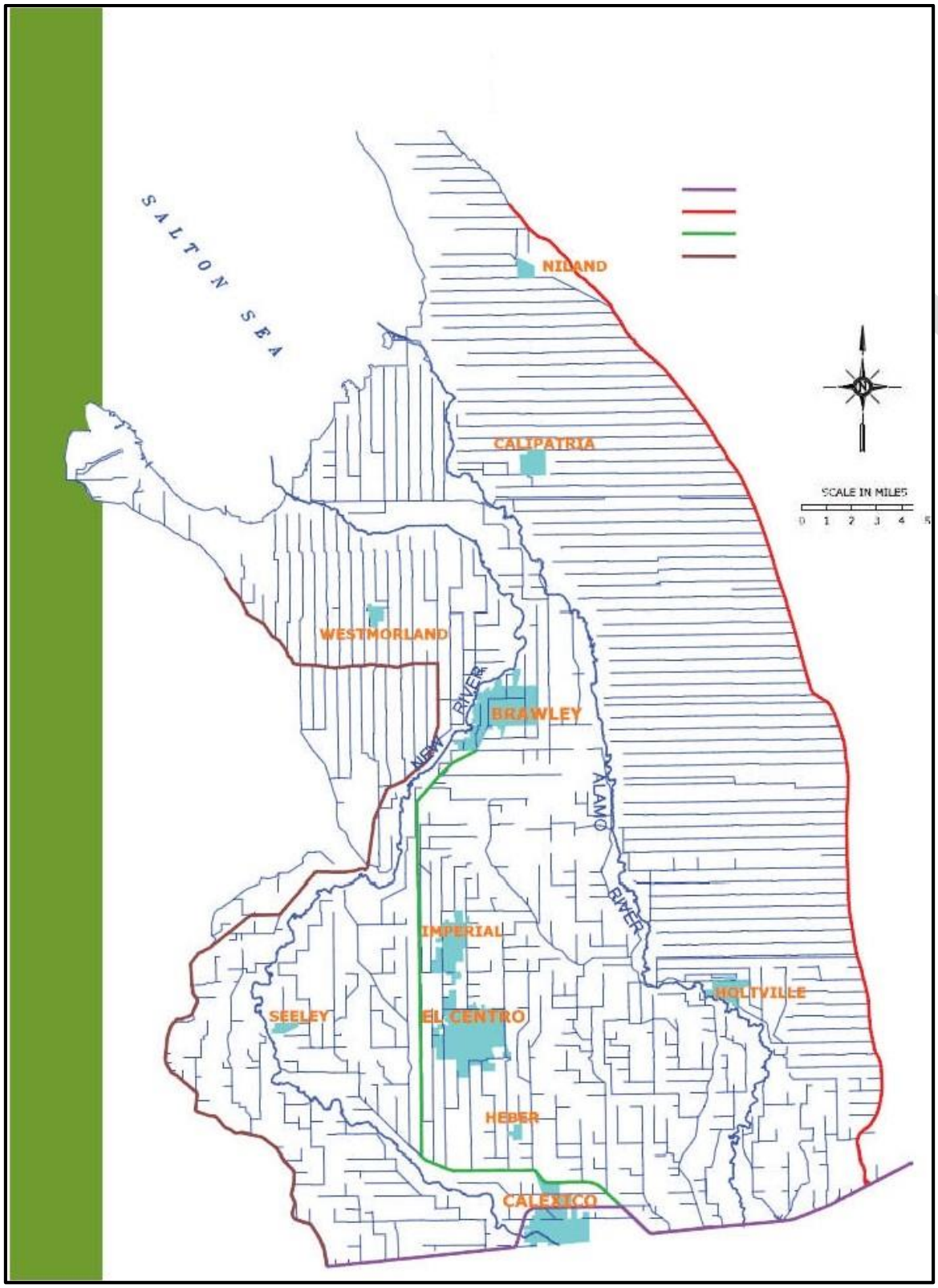

Figure 11: IID Imperial Unit Service Area

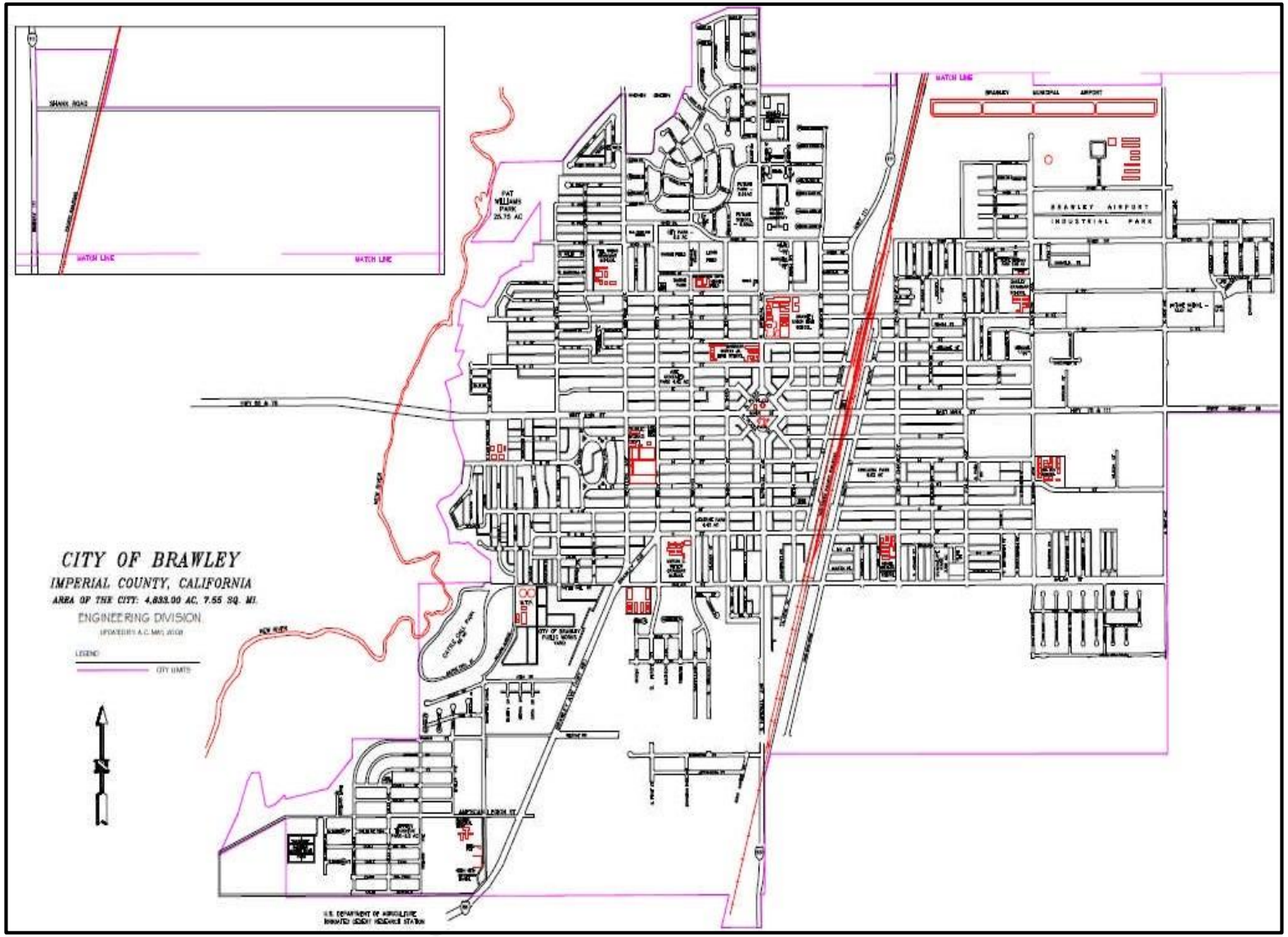

Figure 12: City Limit of the City of Brawley

3.3 Service Area Climate

Describe the service area of the supplier, including… climate…(10631).

3.3.1 Climate Change

3.3.1.1Climate Factors

Imperial Valley is an arid desert, characterized by hot, dry summers and mild winters. Summer temperatures typically exceed 100 degrees Fahrenheit and the winter low temperatures rarely drop below 32 degrees Fahrenheit. The remainder of the year has a relatively mild climate with temperatures averaging in the mid-70s. The average annual air temperature is 72 degrees Fahrenheit and the average frost- free season is about 300 days per year.

Annual rainfall in the Imperial Valley averages less than three inches, with most rainfall associated with brief but intense storms. The majority of the rainfall occurs from December through March. Periodic summer thunderstorms are common in the region.

City of Brawley Historical Climate Data 5/1910 – 9/2007													
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual
Avg. Max. Temp (F)	69.4	73.7	79.0	86.0	94.1	102.9	107.6	106.5	102.3	91.3	78.8	69.9	88.5
Avg. Min. Temp (F)	38.9	43.1	47.6	53.2	59.8	66.8	75.2	75.8	69.5	57.8	46.0	39.2	56.1
Ave. Total Precip. (in.)	0	0.39	0.26	0.11	0.03	0.01	0.05	0.30	0.25	0.22	0.17	0.46	2.65

Source: http://www.wrcc.dri.edu/cgi-bin/cliMAIN.pl?ca1048

Figure 13: City of Brawley Historical Climate Data 5/1910 – 9/2007

3.3.1.2 Prevailing Winds

Imperial Valley elevations range from a few feet above to 273 feet below mean sea level. The U.S./Mexico border, located at the southern end of Imperial Valley, has an elevation of four feet above mean sea level. The Salton Sea located at the northern end of Imperial Valley, and the water level is 230 feet below MSL (the sea bottom is 273 feet below MSL). The relatively flat topography (235 feet in 35miles) of the Imperial Valley and surrounding areas, in conjunction with strong night and day temperature differentials, particularly in the summer months, produce moderate winds and deep thermal circulation systems. The thermal systems facilitate general dispersion of the air.

Wind data from Naval Air Facility El Centro that is used at El Centro Municipal Airport, show that the prevailing winds blow in a western direction. A crosswind occasionally blows in a southeast direction.

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3.4 Service Area Population and Demographics

Describe the service area of the supplier, including current and projected population …The projected population estimates shall be based upon data from the state, regional, or local service agency population projections within the service area of the urban water supplier and shall be in five-year increments to 20 years or as far as data is available (10631).

Past and Current Number of Connections by Customer Type – City of Brawley			
Customer Type	**2010**	**2015**	**Five Year Increase**
Single family res.	5,111	5,011	2 %
Multi-family residential	421	169	60 %
Commercial/Institutional	366	162	56 %
Industrial	1	3	200 %
Landscape Irrigation	8	3	63 %
Other (Gov & Hospital)	24	31	29 %
Brawley Total	**5,931**	**5,379**	**9 %**

Figure 14: Past and Current Number of Connections by Customer Type – City of Brawley

3.4.1 Future Population

California Department of Finance developed population estimates for Imperial County through 2015. **Figure 15** shows the current and projected population estimate from the State of California, Department of Finance, E-5 Population and Housing Estimates for Cities, Counties and the State, 2011-2014, with 2010 Benchmark. Sacramento, California, May 2008. The approximate average annual population growth rate was 2.0 percent per year during this period. This growth rate was used to estimate the population growth through 2035:

Table 3-1 Retail: Population - Current and Projected						
Population Served	**2015**	**2020**	**2025**	**2030**	**2035**	**2040*(opt)***
	26,273	28,900	31,790	34,969	38,466	
NOTES: Population projection calculated as 10% increase per 5 year period.						

Figure 15: Table 3-1 Retail: Population - Current and Projected

3.4.2 Other Demographic Factors

Describe the service area of the supplier, including. . . other demographic factors affecting the supplier's water management planning (10631).

3.4.2.1 Median Household Income

The U.S. Census Bureau estimated the median household income in California at $60,487 in 2014, and $57,020 in the year 2012. In comparison, median household income in Imperial County was $41,772 in the year 2014, with a per capita income of $14,883 (in 2012). Imperial County as a whole, and the City of Brawley in particular, are each designated as a disadvantaged community.

Source: http://www.census.gov/hhes/www/income/data/statemedian/

3.4.2.2 Unemployment Rate

Imperial County has the highest unemployment rate of any county in the United States.

Unemployment Numbers – Imperial County and Cities				
Area Name	**Labor Force**	**Employment**	**Unemployment**	**Unemployment Rate (%)**
Imperial County	76,000	61,900	14,200	18.6%
Brawley City	11,600	9,200	2,400	20.5%
Calexico City	17,300	13,600	3,800	21.7%
Calipatria City	2,400	2,000	300	14.0%
El Centro City	20,600	17,000	3,600	17.3%
Heber CDP	1,700	1,400	300	15.3%
Holtville City	2,900	2,300	600	21.4%
Imperial City	8,300	7,000	1,300	15.7%
Westmorland City	900	700	200	19.2%

Source: California Employment Development Department http://www.labormarketinfo.edd.ca.gov/?pageid=1006

Figure 16: Unemployment Numbers – Imperial County and Cities

Figure 17 below shows the 2015 Dept. of Finance census data for population, housing units, average household size, land area, and population density for the individual cities within the Imperial Valley.

Year 2010 Demographic Data for Imperial Valley Cities					
	Population[1]	**Housing Units[1]**	**Persons per Household**	**Land Area (acres)[2]**	**Population per Acre**
Brawley	26,273	8,275	3.41	9,890	2.7
Calexico	41,033	10,824	4.00	8,302	4.9
Calipatria	7,466	1,121	3.69	4,285	1.7
El Centro	44,847	14,590	3.35	14,288	3.1
Holtville	6,246	1,941	3.47	4,080	1.5
Imperial	17,446	5,358	3.51	8,480	2.1
Westmorland	2,333	677	3.70	880	2.7
Total	145,644	42,786		50,205	
Weighted			3.6		2.7

1-State of California, Department of Finance, E-5 Population and Housing Estimates for Cities, Counties and the State, 2015
2–County of Imperial–Imperial County General Plan, 2006

Figure 17: Year 2010 Demographic Data for Imperial Valley Cities

Chapter 4 – System Water Use

4.1 Water Demands

Figure 18 and **Figure 19** display current and projected water consumption by user category. Single family residences' water usage comprises approximately 93% of the total amount of water that is billed by the city. Multiple family housing units (apartments, duplexes) use a further 3%, thereby bringing the portion consumed by residences to approximately 96% of the total water. **Figure 20** shows total water demand for 2015 and projected demand at 5-year interval out to 2035.

4.2 Water Uses by Sector

Quantify, to the extent records are available, past and current water use, and projected water use (over the same five-year increments described in subdivision (a)), identifying the uses among water use sectors, including, but not necessarily limited to, all of the following uses: (A) Single family residential; (B) Multifamily; (C) Commercial; (D) Industrial; (E) Institutional and governmental; (F) Landscape;(G) Sales to other agencies; (H) Saline water intrusion barriers, groundwater recharge, or conjunctive use, or any combination thereof; (I) Agricultural (10631(e)(1)).

Un-metered flows include park irrigation and system losses. It is anticipated that the un-metered flows will decrease over time, as the City plans to install meters at all park locations. Currently un-metered flows and system losses account for approximately 9% of the total flows. It is anticipated that this will be reduced to 1.5% over the next 20 years. The treated water flows from 2005 to 2010 decreased 12.5% over the five year period. This is probably mostly due to the fact the City installed residential water meters in 2009.

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Table 4-1 Retail: Demands for Potable and Raw Water - Actual			
Use Type *(Add additional rows as needed)*	2015 Actual		
Use Drop down list *May select each use multiple times* *These are the only Use Types that will be recognized by the WUEdata online submittal tool*	Additional Description *(as needed)*	Level of Treatment When Delivered *Drop down list*	Volume
Single Family		Drinking Water	1,120
Multi-Family		Drinking Water	171
Commercial		Drinking Water	103
Industrial		Drinking Water	25
Institutional/Governmental		Drinking Water	1
Landscape	Not Monitored		
Groundwater recharge	NA		
Saline water intrusion barrier	NA		
Agricultural irrigation	NA		
Wetlands or wildlife habitat	NA		
Sales/Transfers/Exchanges to other agencies	NA		
Losses	Not Monitored		
Other			
		TOTAL	1,420
NOTES:			

Figure 18: Table 4-1 Retail: Demands for Potable and Raw Water - Actual

Table 4-2 Retail: Demands for Potable and Raw Water - Projected						
Use Type (Add additional rows as needed)	Additional Description (as needed)	Projected Water Use Report To the Extent that Records are Available				
Use Drop down list May select each use multiple times These are the only Use Types that will be recognized by the WUEdata online submittal tool		2020	2025	2030	2035	2040-opt
Single Family		1,131	1,142	1,153	1,164	
Multi-Family		171	173	175	177	
Commercial		103	104	105	106	
Industrial		25	25	26	26	
Institutional/Governmental		1	1	1	1	
Landscape						
Groundwater recharge		0	0	0	0	0
Saline water intrusion barrier		0	0	0	0	0
Agricultural irrigation		0	0	0	0	0
Wetlands or wildlife habitat		0	0	0	0	0
Sales/Transfers/Exchanges to other agencies		0	0	0	0	0
Losses						
Other						
	TOTAL	1431.2	1445.26	1459.2	1473.7	0
NOTES:						

Figure 19:Table 4-2 Retail: Demands for Potable and Raw Water - Projected

Table 4-3 Retail: Total Water Demands						
	2015	2020	2025	2030	2035	2040 *(opt)*
Potable and Raw Water *From* ***Table 4-1*** *and* ***Table 4-2***	1,420	1,431	1,445	1,459	1,474	0
Recycled Water Demand *From* ***Table 6-4***	0	0	0	0	0	0
TOTAL WATER DEMAND	1,420	1,431	1,445	1,459	1,474	0
NOTES:						

Figure 20: Table 4-3 Retail: Total Water Demands

4.3 Distribution System Water Losses

For the 2015 urban water management plan update, the distribution system water loss shall be quantified for the most recent 12-month period available. For all subsequent updates, the distribution system water loss shall be quantified for each of the five years preceding the plan update (10631(e)(3)(A)).

The distribution system water loss quantification shall be reported in accordance with a worksheet approved or developed by the department through a public process. The water loss quantification worksheet shall be based on the water system balance methodology developed by the American Water Works Association (10631(e)(3)(B)).

The City of Brawley does not currently perform water loss audits. Key city personnel are currently in discussions to establish a water loss audit protocol for future years; no loss data exists to date for **Table 4-4**.

Table 4-4 Retail: 12 Month Water Loss Audit Reporting	
Reporting Period Start Date (mm/yyyy)	Volume of Water Loss
No audit on water loss	

Figure 21: Table 4-4 Retail: 12 Month Water Loss Audit Reporting

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4.4 Estimating Future Water Savings

If available and applicable to an urban water supplier, water use projections may display and account for the water savings estimated to result from adopted codes, standards, ordinances, or transportation and land use plans identified by the urban water supplier, as applicable to the service area 10631(e)(4)(A).

To the extent that an urban water supplier reports the information described in subparagraph (A), an urban water supplier shall do both of the following: (i) Provide citations of the various codes, standards, ordinances, or transportation and land use plans utilized in making the projections.(ii) Indicate the extent that the water use projections consider savings from codes, standards, ordinances, or transportation and land use plans. Water use projections that do not account for these water savings shall be noted of that fact 10631(e)(4)(B).

Figure 22 summarizes the method of water demand projection. Future water savings are not included in projections. Lower income residential demands are not included in projections.

Table 4-5 Retail Only: Inclusion in Water Use Projections	
Are Future Water Savings Included in Projections? (Refer to Appendix K of UWMP Guidebook) *Drop down list (y/n)*	NO
If "Yes" to above, state the section or page number, in the cell to the right, where citations of the codes, ordinances, etc… utilized in demand projections are found.	
Are Lower Income Residential Demands Included In Projections? *Drop down list (y/n)*	NO
NOTES:	

Figure 22: Table 4-5 Retail Only: Inclusion in Water Use Projections

4.5 Water Use for Lower Income Households

The water use projections required by Section 10631 shall include projected water use for single-family and multifamily residential housing needed for lower income households, as defined in Section 50079.5 of the Health and Safety Code, as identified in the housing element of any city, county, or city and county in the service area of the supplier (10631.1(a)).

There are 1,395 very low income and 1,175 extremely low income units in the City of Brawley, according to the City's Housing Element. The Housing Element anticipates growth increases by 2% each year. The demand was projected using the 2015 and 2020 per capita demand calculated in this document.

To estimate the projected water demands the units are multiplied by 3.55 (# of capita per household per County Data) and the Urban Water Target for 2015 and 2020 respectively. The 2015 target of 310 GPCD was revised from the previous UWMP to reflect the updated population information from the Department of Finance.

2015

Extremely low income:

1,395 units * 3.55 cap/unit * 310 gallon/cap/day = 1,535,198 gallon/day or

560 million gallons per year or 2,000 acre feet per year

Very low income:

1,175 units * 3.55 cap/unit * 310 gallon/cap/day = 1,293,087 gallon/day or

471 million gallons per year or 1,681 acre feet per year

2020 (estimated)

Extremely low income:

1,535 units * 3.55 cap/unit * 275 gallon/cap/day = 1,498,543 gallon/day or

546 million gallons per year or 1,949 acre feet per year

Very low income:

1,293 units * 3.55 cap/unit * 275 gallon/cap/day = 1,262,291 gallon/day or

460 million gallons per year or 1,642 acre feet per year

4.6 Climate Change

Climate change is not viewed as an impacting factor in water source reliability for the City of Brawley. The IID, whom supplies the City with raw water, places the highest priority on drinking water supply, the quantity of which makes up a very small percentage of the IID's total water rights. The City's water demands are significantly lower than their available supply. As such, for the foreseeable future, water supply impacts due to climate change are not of factor.

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Chapter 5 – SB X7-7 Baselines and Targets

5.1 Water Conservation Bill of 2009 (SB X7-7)

The Water Conservation Bill of 2009 (SB X7-7) is one of four policy bills enacted by the California legislature as part of the November 2009 Comprehensive Water Package (Special Session Policy Bills and Bond Summary).The Water Conservation Bill of 2009 provides the regulatory framework to support the state wide reduction in urban per capita water use described in the 20x2020 Water Conservation Plan (DWR and others 2010). It also addresses agricultural water use; and commercial, industrial, and institutional (CII) water use. Method 1 was used to calculate the target per capita water use.

Before California can achieve the Final 2020 Statewide Target of 154 GPCD, each water supplier must determine and report its existing baseline water consumption and establish either its own or cooperative targets. This reporting is to begin with the 2010 UWMP, as required by the Water Conservation Bill of 2009.

SB X7-7 describes what is required of water suppliers to identify their water conservation targets and track their progress toward achieving those targets. It also requires that water suppliers document and report targets and progress in UWMPs (CWC§10608.20(e)).

The existing City's water billing system identifies customers' categories so that accounts can be classified by use class and can identify each customer by sector and usage category. The City does not use recycled water and therefore no deductions for recycled water were used.

5.2 Updating Calculations from 2010 UWMP

An urban retail water supplier may update its 2020 urban water use target in its 2015 urban water management plan required pursuant to Part 2.6 (commencing with Section 10610) (10608.20(g)).

This plan updates the 2010 UWMP by incorporating census data for 2015 from the Department of Finance and follows the appropriate calculations and information organization as outlined in the *2015 UWMP Guidebook.* The City has significantly surpassed all projections and targets due to a large user, National Beef, leaving the City's service area. In 2010, while National Beef was still within the City's service area, their demand was 21.6% of the total water pumped into the system.

5.3 Baseline Periods

An urban retail water supplier shall include in its urban water management plan...due in 2010 the base line daily per capita water use, urban water use target, interim urban water use target, and compliance daily per capita water use, along with the bases for determining those estimates, including references to supporting data (10608.20(e)).

An urban retail water supplier may update its 2020 urban water use target in its 2015 urban water management plan required pursuant to Part 2.6 (commencing with Section 10610) (10608.20(g)).

Using Department of Finance and city pumping records, the 2015 average daily per capita consumption was calculated to be approximately 160 gallons per capita day (gpcd), see SB X7-7 Table 6 in **Appendix B**. Per Capita water usage is very seasonally dependent, largely due to increased landscape irrigation

during the hot summer months. Residences consume more than all other users and have the most fluctuation in monthly usage. Commercial and Governmental customers reduce water consumption during cooler months.

5.3.1 Determination of the 10-15 Year Baseline Period (Baseline GPCD)

(b) "Base daily per capita water use" means any of the following: (1) The urban retail water supplier's estimate of its average gross water use, reported in gallons per capita per day and calculated over a continuous 10-year period ending no earlier than December 31, 2004, and no later than December 31, 2010. (2) For an urban retail water supplier that meets at least 10 percent of its 2008 measured retail water demand through recycled water that is delivered within the service area of an urban retail water supplier or its urban wholesale water supplier, the urban retail water supplier may extend the calculation described in paragraph (1) up to an additional five years to a maximum of a continuous 15-year period ending no earlier than December 31, 2004, and no later than December 31, 2010 (10608.12(b)(1 & 2)).

The consecutive 10 year average per capita, per day baseline is 344 gallons between 2001 and 2010: Table 5-1 (data from SB X7-7) elaborates on this information. The City does not currently use recycled water; therefore, no deduction for recycled water was made.

5.3.2 Determination of the 5-Year Baseline Period (Target Confirmation)

For the purposes of Section 10608.22, the urban retail water supplier's estimate of its average gross water use, reported in gallons per capita per day and calculated over a continuous five-year period ending no earlier than December 31, 2007, and no later than December 31, 2010 (10608.12 (b)(3)).

The consecutive 5 year average per capita, per day baseline is 316 gallons between 2001 and 2010: **Figure 23** (data from SB X7-7) elaborates on this information.

The 2020 Target GPCD, based on 20% reduction of the 10-15 year baseline GPCD is as follows and as found in SB X7-7 Table 7-A located in **Appendix B**.

TARGET METHOD 1: City of Brawley Urban Water Use Target 275

City of Brawley 2020 Urban Water Use Target

Figure 23: City of Brawley 2020 Urban Water Use Target

5.4 Service Area Population

(e)An urban retail water supplier shall include in its urban water management plan due in 2010…the baseline per capita water use,…along with the bases for determining those estimates, including references to supporting data. (f) When calculating per capita values for the purposes of this chapter, an urban retail water supplier shall determine population using federal, state, and local population reports and projections (10608.20 (e&f)).

The plan…shall include any standardized forms, tables or displays specified by the department (10644(a)(2)).

Figure 24 below shows the 2005 through 2015 population from the California Department of Finance (DoF).

DoF Population Data: 2005 through 2015											
	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Brawley	23,863	25,342	25,421	26,391	26,976	27,743	24,953	25,229	25,559	25,768	25,967
Calexico	36,003	36,533	37,151	38,558	39,380	40,075	38,572	38,958	39,674	40,266	40,653
Calipatria	7,876	7,807	7,736	7,757	8,111	8,233	7,705	7,663	7,995	7,117	7,533
El Centro	40,728	41,766	41,626	43,119	44,303	45,365	42,598	43,013	43,535	44,059	44,366
Holtville	5,703	5,813	6,232	6,437	6,521	6,641	5,939	5,999	6,073	6,123	6,178
Imperial	9,496	10,083	11,726	12,693	12,985	13,374	14,758	15,044	15,412	16,066	16,762
Westmorland	2,424	2,360	2,349	2,394	2,429	2,416	2,225	2,248	2,280	2,299	2,311
Unincorporated	34,774	36,117	38,801	38,147	38,723	39,182	37,778	37,558	37,487	37,362	37,228
Incorporated	126,093	129,704	132,241	137,349	140,705	143,847	136,750	138,154	140,528	141,698	143,770
Imperial Valley Total	160,867	165,821	171,042	175,496	179,428	183,029	174,528	175,712	178,015	179,060	180,998

Source: DoF; Table 2: E-4 Population Estimates for Cities, Counties and State, 2005-2015

Figure 24: DoF Population Data: 2005 through 2015

5.5 Gross Water Use

"Gross Water Use" means the total volume of water, whether treated or untreated, entering the distribution system of an urban retail water supplier, excluding all of the following: (1) Recycled water that is delivered within the service area of an urban retail water supplier or its urban wholesale water supplier (2) The net volume of water that the urban retail water supplier places into long term storage (3) The volume of water the urban retail water supplier conveys for use by another urban water supplier (4) The volume of water delivered for agricultural use, except as otherwise provided in subdivision (f) of Section 10608.24 (10608.12(g)).

There are several tables from the SB X7-7 Verification Form that are related to gross water calculations. The City of Brawley will not deduct indirect recycled water and/or process water from their gross water because recycled water is not currently use nor is it planned to be used in the future. These SB X7-7 tables are found in **Appendix B**.

5.6 2015 and 2020 Targets

An urban retail water supplier shall include in its urban water management plan due in 2010. . . urban water use target, interim urban water use target,…along with the bases for determining those estimates, including references to supporting data (10608.20(e)).

An urban retail water supplier may update its 2020 urban water use target in its 2015 urban water management plan… (10608.20 (g)).

The City's Urban Water Use Target for 2020 is ***275*** GPCD as shown in SB X7-7 Table 7-A. In 2015, the City's GPCD was 160, well below the2015 interim target. The City must maintain water usage below the target goals through 2020 to be eligible for future state funding.

5.6.1 Select and Apply a Target Method

Reference tables from **SB X7-7** shown in **Appendix B**.

5.6.2 5-Year Baseline – 2020 Target Confirmation

Notwithstanding the method adopted by an urban retail water supplier pursuant to Section 10608.20, an urban retail water supplier's per capita daily water use reduction shall be no less than 5 percent of base daily per capita water use as defined in paragraph (3) of subdivision (b) of Section 10608.12. This section does not apply to an urban retail water supplier with a base daily per capita water use at or below 100 gallons per capita per day (10608.22).

The City of Brawley has continually reduced there GPCD water usage. In recent years the largest consume of water within the City's service area, National Beef, has left. With the exit of such a large consumer the City readily met the required water reduction targets. The data input to the 2015 UWMP tables is accurate and the output from these tables yields a 2015 GPCD target higher than that previously calculated in the 2010 UWMP. This difference may be due to the loss of National Beef within the City's service area in combination with the updated population data from the Department of Finance (the 2010 UWMP did not reflect the 2010 census data because those population estimates had not yet been released at the time of the report submittal).

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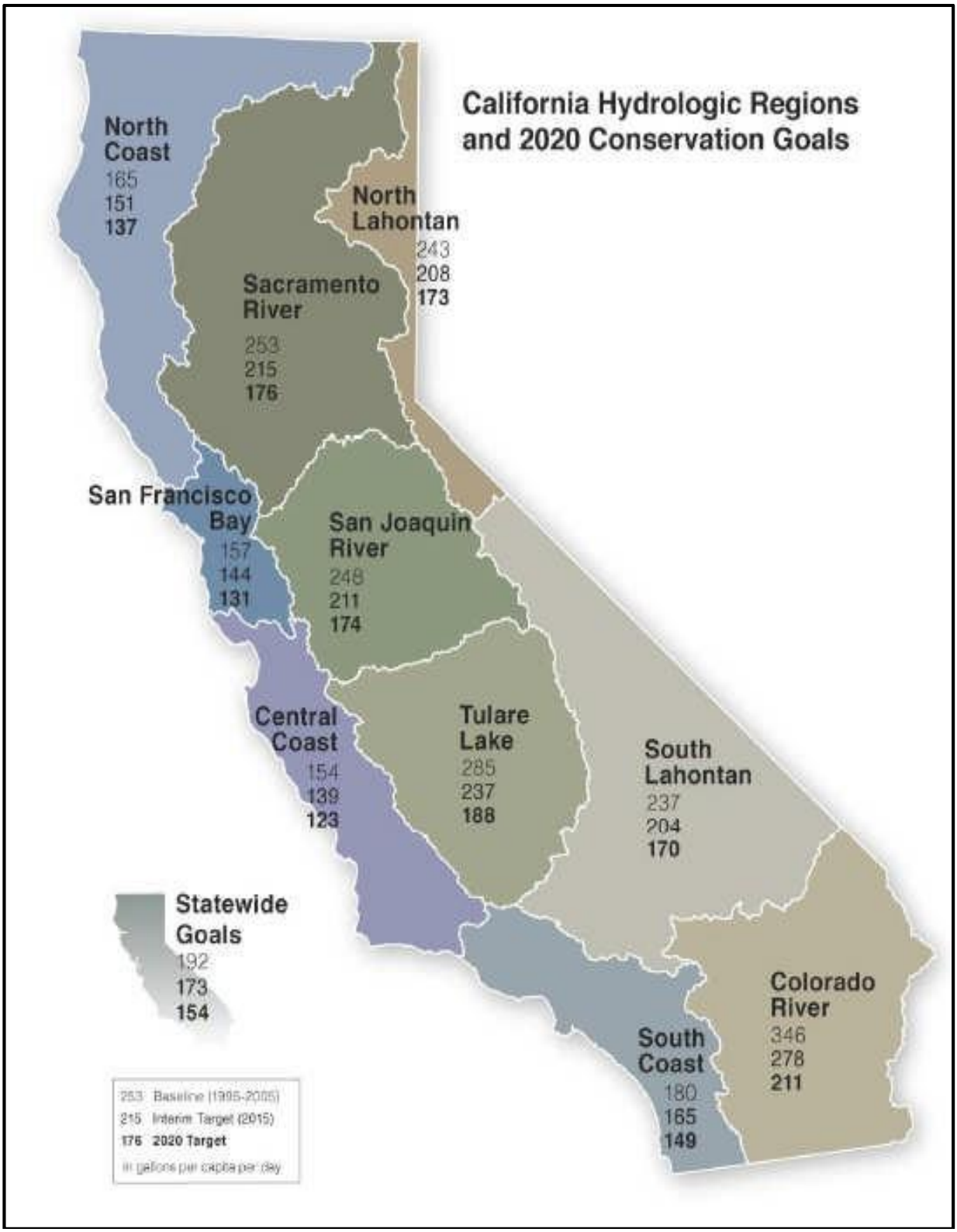

Figure 25: California Hydrologic Regions and 2020 Conservation Goals

5.6.3 Calculate the 2015 Interim Urban Water Use Target

The 2010 UWMP estimated the Interim Urban Water Use Target for 2015 using the average of the base line (277 gcpd) and 2020 Urban Water Use Target 222 gpcd):

Interim Urban Water Use Target for 2015 (average between the Base Line and Urban Water Use Target GPCD)	249.5 gpcd

Figure 26: Interim Urban Water Use Target for 2015

The actual water usage in 2015 is 160 gpcd. The City of Brawley has met their 2015 Interim Urban Water Use Target. This projection aligns the City with exceeding the 2020 gpcd target.

5.6.4 Baselines and Targets Summary

Figure 27 provides a summary of reporting requirements and the corresponding SB X7-7 tables.

Table 5-1: Baselines and Targets Summary *Retail Agency or Regional Alliance Only*					
Baseline Period	Start Year	End Year	Average Baseline GPCD*	2015 Interim Target *	Confirmed 2020 Target*
10-15 year	*2001*	*2010*	*344*	*310*	*275*
5 Year	*2003*	*2007*	*361*		
*All values are in Gallons per Capita per Day (GPCD)					
NOTES: The previous Water use target is not reflective of the updated population information nor the abandonment of the City by National Beef, previously the largest water consumer within the City's service area.					

Figure 27: Table 5-1: Baselines and Targets Summary

5.7 2015 Adjustments to 2015 Gross Water Use

(1) When determining compliance daily per capita water use, an urban retail water supplier may consider the following factors: (A) Differences in evapotranspiration and rainfall in the baseline period compared to the compliance reporting period. (B) Substantial changes to commercial or industrial water use resulting from increased business output and economic development that have occurred during the reporting period. (C) Substantial changes to institutional water use resulting from fire suppression services or other extraordinary events, or from new or expanded operations, that have occurred during the reporting period. (2) If the urban retail water supplier elects to adjust its estimate of compliance daily per capita water use due to one or more of the factors described in paragraph (1), it shall provide the basis for, and data supporting, the adjustment in the report required by Section 10608.40 (10608.24(d)(1&2)).

Figure 28 shows adjustments to 2015 gross water use in GPCD. No optional adjustments from *Methodology 8* were made.

Table 5-2: 2015 Compliance *Retail Agency or Regional Alliance Only**								
Actual 2015 GPCD	**2015 Interim Target GPCD**	**Optional Adjustments to 2015 GPCD Enter "0" for adjustments not used *From Methodology 8***					**2015 GPCD *(Adjusted if applicable)***	**Did Supplier Achieve Targeted Reduction for 2015? Y/N**
		Extraordinary Events	**Economic Adjustment**	**Weather Normalization**	**TOTAL Adjustments**	**Adjusted 2015 GPCD**		
160	249.5	0	0	0	0	160	160	YES
**All values are in Gallons per Capita per Day (GPCD)*								
Taken from Drought report								

Figure 28: Table 5-2: 2015 Compliance

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Chapter 6 – System Supplies

6.1 Purchased or Imported Water

6.1.1 Imperial Irrigation District Water Use

The Imperial Irrigation District provides wholesale water service. Demand for water in the Imperial Unit service area is divided into three basic categories: agricultural, municipal, and industrial. Presently the Imperial Irrigation District delivers the vast majority of its annual flows to agricultural water users, and only a very small percentage to municipalities and industrial purposes.

The Imperial Irrigation District's consumptive use values include the total use of raw water in the Imperial Unit. These consumptive use values include agriculture, small acreage, service laterals, municipalities, industrial, losses and unaccounted raw water. There is no available data that completely distinguishes between these uses of raw water.

Water distribution systems "lose" water during distribution for several reasons. Specific water distribution "losses" depend on the type of distribution system. A piped water distribution system can lose water due to pipe failures or leaks. Open channels, ponds, reservoirs, and water basins can "lose" water from seepage through the soil, surface evaporation into the air, and plant consumptive use.

An open channel, gravity flow water distribution system has operational spill. Operational spills are excess flows discharged from a channel into a drain or other sump (Salton Sea). Operational spills can result from: carriage water that is required to fill and empty the reaches of sloping channels; increases in water user flexibility for water ordering and delivery scheduling; and terminating water deliveries during rainfall events, storm runoff, and flood flows.

The Imperial Irrigation District has an open channel gravity flow water distribution system. Its water distribution system losses result from three major conditions: seepage, operational spills, and evaporation. The Imperial Irrigation District's water distribution system losses have been reduced through the years by numerous water conservation and demand management programs and projects. The demand management programs and projects are described in detail in the Imperial Irrigation District Demand Management Section of this plan.

6.1.2 Agricultural Water Use in the Imperial Valley

Over 120 types of crops are grown in the Imperial Valley. Most relevant to the Water Element is an examination of the various crop types, the acreage dedicated to each and the demand for irrigation water generated by each crop per acre of cultivation. Water demand is provided below on a net consumption basis and is based on historical acreage and water use data. Major water consuming crops include alfalfa (5.20ac.ft./acre), asparagus (4.12 ac.ft./acre), cotton (3.45 ac.ft./acre), and tomatoes (2.23 ac.ft/acre). More efficient crops include carrots (1.21 ac.ft./acre), squash (1.58 ac.ft./acre), and barley (1.64 ac.ft./acre). Since the 2000's 500,000 acres are in cultivation over the year including double cropping. Crops grown on this acreage consume approximately 1,500,000 acre-feet per year. **Figure 29**

below shows the historical average of individual crop acreage and water use in Imperial Valley over a ten year period.

Approximately ninety-seven percent of the water imported into Imperial Valley from the Imperial Irrigation District is used for agricultural purposes. Imperial Irrigation District supplies more than 2,500,000 acre-feet of water annually for primarily agricultural purposes to its customers in Imperial Valley, to just over 500,000 acres of irrigated farmland (double-cropped).

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IID Crop Acreage and Water Use in Imperial Valley (Historical Average)		
Crop	**Area (Acres)**	**Water Use (af)**
Garden Crops	**1985**	
Broccoli	7,000	11,480
Carrots	12,000	14,540
Lettuce	35,000	47,017
Cantaloupes	15,000	33,213
Watermelons	5,000	10,929
Other Melons	4,000	8,903
Onions	10,000	17,725
Squash	1,000	1,578
Tomatoes	3,000	6,695
Vegetables (misc.)	5,000	8,083
Field Crops		
Alfalfa	185,000	961,692
Barley	1,000	1,650
Bermuda Grass	15,000	52,125
Cotton	40,000	137,900
Rye Grass	4,000	9,500
Sorghum	3,000	7,330
Sudan Grass	20,000	47,500
Sugar Beets	35,000	122,208
Wheat	105,000	204,488
Miscellaneous	2,000	4,695
Permanent Crops		
Asparagus	3,000	12,355
Citrus Fruits	2,000	7,163
Duck Ponds (feed)	8,000	24,000
Jojoba	3,000	10,745
Trees and Vines	1,000	3,582
Miscellaneous	1,000	3,982
Source:	Water Requirements and Availability Study. Prepared by Parsons Water Resources, Inc. for the IID. November 1985.	

Figure 29: IID Crop Acreage and Water Use in Imperial Valley (Historical Average)

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6.2 Groundwater

Waters within the shallow aquifers of the Salton Trough generally move at right angles to contours lines, and towards the Salton Sea. Based on pumping data and water studies on various wells, groundwater is from six to eight feet below the ground surface level throughout most of the Imperial Valley.

The deep water reservoir underlying Imperial Valley has been estimated at 1.1 billion to 3.0 billion acre-feet, with total recoverable water estimated to be about twenty percent of the water in storage.

6.2.1 Basin Description

(Provide a) description of any groundwater basin or basins from which the urban water supplier pumps groundwater (10631(b)(2)).

The City does not use groundwater.

6.2.2 Groundwater Management

(Provide a) copy of any groundwater management plan adopted by the urban water supplier, including plans adopted pursuant to Part 2.75 (commencing with Section 10750), or any other specific authorization for groundwater management (10631(b)(1)).

Table 6-1 Retail: Groundwater Volume Pumped						
☑	Supplier does not pump groundwater. The supplier will not complete the table below.					
Groundwater Type ***Drop Down List*** *May use each category multiple times*	**Location or Basin Name**	**2011**	**2012**	**2013**	**2014**	**2015**
Add additional rows as needed						
Alluvial Basin	N/A	0	0	0	0	0
Fractured Rock	N/A	0	0	0	0	0
	TOTAL	0	0	0	0	0
NOTES: Not Applicable						

Figure 30: Table 6-1 Retail: Groundwater Volume Pumped

There is no groundwater management plan for the City.

For those basins for which a court or the board has adjudicated the rights to pump groundwater, (provide) a copy of the order or decree adopted by the court or the board (10631(b)(2)).

The City does not use groundwater.

6.2.3 Overdraft Conditions

For basins that have not been adjudicated, (provide) information as to whether the department has identified the basin or basins as overdrafted or has projected that the basin will become overdrafted if present management conditions continue, in the most current official departmental bulletin that characterizes the condition of the groundwater basin, and a detailed description of the efforts being undertaken by the urban water supplier to eliminate the long-term overdraft condition (10631(b)(2)).

The City does not use groundwater.

6.2.4 Historical Groundwater Pumping

(Provide a) detailed description and analysis of the location, amount, and sufficiency of groundwater pumped by the urban water supplier for the past five years. The description and analysis shall be based on information that is reasonably available, including, but not limited to, historic use records (10631(b)(3)).

The City does not use groundwater.

6.3 Surface Water

The City of Brawley has been supplying potable drinking water since the early years of the 1900's when water became available from the Colorado River. Brawley receives its raw water from the Colorado River via the Imperial Irrigation District's (IID) All-American Canal and the Central Main Canal. The raw water is stored in reservoirs until undergoing treatment. The raw water is stored in reservoirs until undergoing treatment.

The City of Brawley depends solely on the Colorado River for surface water inflows, supplied by the Imperial Irrigation District. The Imperial Irrigation District imports the raw Colorado River water and distributes it to the City and for agricultural purposes. Water from agricultural drains, the New and Alamo Rivers are high in total dissolved solids and other contaminants and are unsuitable for potable water use. The City treats the raw surface water to meet state and federal drinking water standards before distribution.

6.3.1 Agricultural Drains

As part of its operating system, the IID maintains an extensive drainage system. Agricultural and storm water drainage is provided by the Alamo and New Rivers, over 1,405 miles of IID open drains and drainage pumps and over 34,400 miles of landowner tile drains. The ultimate repository for drainage water from the IID is the Salton Sea. With a surface area of about 383 square miles (or 245,000 acres), it is California's largest lake. The Salton Sea receives approximately 1,100,000 acre feet of drainage flows annually (since 2003) from Imperial, Coachella, and Mexicali Valleys, as well as rainfall, storm runoff from the surrounding mountains and groundwater inflow.

There are three general categories which describe the surface water in Imperial Valley. These are freshwater, brackish water, and saline water. The freshwater (with TDS generally less than 1,000 ppm) include the All-American Canal and other canals and laterals which deliver irrigation water to the agricultural fields within the County. The brackish waters (with TDS in the range of 2,000 to 4,000 ppm) include the Alamo River, New River and the agricultural drains that flow into these rivers or directly into the Salton Sea.

The Salton Sea represents the saline water category. Salinity concentrations have been rising and are currently higher than ocean water (the Salton Sea's current TDS was approximately 53,000ppm in 2010 vs. an average of 34,000ppm for ocean water). The Salton Sea evaporates between eight and nine feet per year. The surface waters in Imperial Valley thus pass through a salinity gradient from the Colorado River to the Salton Sea.

This regional salinity gradient exists because of the high evaporation of the Imperial Valley, high temperatures, low annual rainfall, and continual leaching of salts from irrigated areas due to the high salinity of the Colorado River Water (approximately 750ppm). Evapotranspiration is water transported and evaporated from plants and surrounding soil surfaces. Although water is continually evaporated from the major canals, this evaporation represents a relatively minor increase in dissolved solids concentration because of the short residence times within the water conveyance system.

Normal evapotranspiration rates from the irrigated fields from efficient irrigation practices substantially reduce the amount of water and increase the concentration of salt entering the drainage system. For these reasons and due to salinity within the soils, a 300% to 500% increase in total dissolved solids concentration is normal within the Imperial Unit as water is efficiently applied to agricultural lands from the All- American Canal and is conveyed to the IID drains, the New River and the Alamo River, and eventually to the Salton Sea.

The increase in salinity is extremely important because it affects the aquatic ecosystems. However, salinity is not the only water quality issue. The intensive irrigation in the valley presents the potential for the introduction of agricultural chemicals, such as pesticides and herbicides, into downstream waters. Field erosion and dredging activities also result in siltation in the New and Alamo Rivers and the Salton Sea. The bacteriological quality of these waters is also a concern because these streams receive locally generated municipal waste discharges, in addition to the waste load entering the United States from Mexico.

6.3.2 New River

The New River originates in Mexico, and flows northward across the International Boundary into Imperial Valley. The flow continues through the Imperial Valley and ultimately discharges into the Salton Sea. The primary purpose of the New River is to convey agricultural drainage in the Imperial and Mexicali valleys to the Salton Sea. A corollary use of the New River is to convey treated community and industrial wastewaters. This corollary use is strictly controlled in the Imperial Valley by waste discharge requirements prescribed and enforced by the California Regional Water Quality Control Board. However, Mexico's corollary use of the New River is largely ignored and uncontrolled.

Mexico discharges raw and inadequately treated sewage, toxic industrial wastes, garbage and other solid wastes, animal wastes, and geothermal wastewaters out of the Mexicali area of Mexico and into the Imperial Valley. This process has continued for over forty years, resulting in the on-going pollution of the New River at the International Boundary. As Mexico's industry and population continue to grow, these problems have a high potential to increase if corrective measures are not taken.

Until August of 1983, the problem of Mexico polluting the New River had been the responsibility of United States Section of the International Boundary and Water Commission (IBWC), a joint United States/Mexico federal agency with responsibility for dealing with border water and sanitation problems between the two nations. Over a period of thirty years, the California Regional Water Quality Control

Board made several representations to the United States Commissioner on the IBWC to obtain corrections to the problem. Since 1975, the California Regional Water Quality Control Board has been monitoring water pollution of the New River to identify the pollutants actually coming from Mexico. This information is presented to the United States Commissioner to aid and encourage Mexico in implementing corrective measures.

In August of 1980, Minute No. 264 to the Mexico-American Water Treaty was signed, which specified time schedules for completing work that was to result in a full cleanup of the river. In addition, minimum water quality standards were specified for New River water quality at the International Boundary. Mexico has been in violation of practically all of the specified schedules and standards since Minute No. 264 went into effect in December of 1980. There is no evidence that Minute No. 264 has had any influence on actions in Mexico to clean up the river.

In July of 1983, the California Regional Water Quality Control Board conducted an investigation. The purpose of the investigation was to determine the type(s) and extent of waste discharges into the New River and its tributaries from Mexico so that possible corrective action could be considered and pursued. The investigation identified problems that must be addressed to obtain adequate corrections. These problems included:

- City sewer lines which are not connected to the City's main sewer system discharging raw sewage to the river;
- Breakdowns in the sewer system resulting in the discharge of raw sewage to the river;
- Discharge of wastes to the river by septic tank pumpers;
- Discharge of wastes to the river from adjacent unsewered residences;
- Discharge of untreated industrial wastes to the river including highly toxic chemicals wastes, many of which are on the Environmental Protection Agency's list of 129 priority pollutants and some of which are carcinogens;
- Inadequate treatment of sewage and industrial wastes by Mexicali, whose sewage treatment plant consists of nothing more than raw sewage lagoons;
- Location of the City's garbage dump such that refuse is disposed of directly into the river water;
- Discharges of untreated wastes from a slaughterhouse, dairy, and hog farms;
- Discharges from residential hog and cattle pens located adjacent to the river and its tributaries; and
- Discharge of geothermal wastes to the river.

In August of 1983, a United States/Mexican Agreement for protection and improvement of the environment in the border area was signed by the Presidents of Mexico and the United States. Under this agreement, responsibility for border environmental problems, including the New River pollution problem, was transferred from the International Boundary and Water Commission to the United States Environmental Protection Agency for the United States, and to the Mexican Secretarial de Desarollo Urbano y Ecologia (SDUE) for Mexico. Since this transfer of responsibility, progress has been slow and it is questionable if the agreement has served any useful purpose in controlling pollution in the New River.

In April of 1987, Minute No. 274 to the Mexican-American Water Treaty was approved by the United States and Mexico. The minute provided for a $1.2 million United States/Mexico jointly funded project to construct certain works in Mexico to reduce pollution in the New River. Although this project is just a step towards resolving the pollution problems of the New River, it sets a precedent for the involvement of the United States in the implementation of corrective actions within Mexicali.

According to the International Boundary and Water Commission of the United States, additional projects are needed to help reduce water pollution from Mexico. Mexico and the United States are currently negotiating measures to solve the problem. Upon agreement between both governments, a new Minute will be approved and added to the Mexican-American Treaty to supersede Minute No. 274. The main goal of the new Minute would be to establish a long-term solution to the water pollution problem.

The Alamo River is also polluted with contaminants. A small amount of groundwater seepage from agricultural fields crosses into Imperial Valley from Mexico to the Alamo River and has low pollutant concentrations.

The main pollutants in the water are pesticides which get drained into the Alamo River during irrigation. However, the potential for polluting the Alamo River could increase not only from the pesticides contained in the water but from potential development at or near the Alamo River at the International Boundary, such as the new border crossing that has been constructed near the Alamo River as it crosses into the United States.

This new border crossing could create an urban sprawl effect in this area of Imperial Valley, which would increase drainage into the Alamo River. The Alamo River currently has a small concrete culvert that passes underneath the All-American Canal which drains seepage water coming from Mexico. Additional flows could impact the river and present a financial burden to Imperial Valley and lead to environmental health problems.

An option proposed by the California Regional Water Quality Control Board has been to shunt the Alamo River into a drainage system which would eventually drain into the New River before it crosses into the United States. In order for this to happen, both governments must agree. Presently, nothing has been settled but further negotiations are currently being reviewed between the United States and Mexico, in hopes to minimize potential problems that could result from the development of the new border crossing.

6.3.3 Surface Water from the Colorado River

Water is supplied to the City from the All-American Canal through the Central Main Canal. The supply point for the water plant is the South Date Canal and the Dahlia Lateral Number 1. Both of these canals flow north from the Central Main Canal. The South Date Canal runs immediately east of the treatment facility and has capacity to deliver 22.6 million gallons per day (MGD) of untreated water to the plant.

The Dahlia Lateral Number 1, located west of the plant, is capable of supplying the plant with an additional 9.0 mgd. The Dahlia Lateral has been used as a water source more during the last few years. This is because it has fewer services drawing water from it than the South Date Canal. It maintains a steadier flow and is a more reliable source. The capacity of water delivery from the Dahlia Lateral is limited due to the size of gate 18A and the back pressure of the Lateral. The total amount of raw water that can currently be supplied to the City is 31.6 mgd (35,755 acre-feet per year).

Rainfall average is less than three inches per year and does not contribute to Imperial Irrigation District's water supply, although at times it may reduce agricultural water demand.

As the City grows and develops on existing agricultural land, theoretically there will be more supply of water available. Agriculture requires more raw water per acre than developed land.

Municipal water is not a large portion of the total water delivered by the IID. It represents only approximately three percent (3%) of the total water delivered. The total municipal use has not significantly changed since 2006. **Figure 31** below shows the total water delivered. Since the portion of water used by the municipalities is low compared to the overall use, it is not anticipated that there will be any shortage of raw water from the IID. The city's main constraint of raw water availability is in the raw water inlet piping capacity. As was mentioned earlier, the total amount of raw water that can currently be supplied by the IID to the City is 31.6 MGD (35,755 acre-feet per year) which is more than enough capacity for the foreseeable future.

IID Consumptive Use Amount vs. Total Municipal Use				
Year	IID Net Consumptive Use Amount (Total Imperial Valley) (AF)	Total Municipal Use (AF)	Total Other Non-Agricultural Use (AF)	Total Agricultural Use (AF)
2010	2,363,800	50,819	54,749	2,258,232
2015	2,236,300	55,877	66,382	2,114,041
2020	2,316,300	61,397	78,015	2,176,888
2025	2,284,300	67,335	85,558	2,131,407
2030	2,279,300	71,233	93,101	2,114,966

Figure 31: IID Consumptive Use Amount vs. Total Municipal Use

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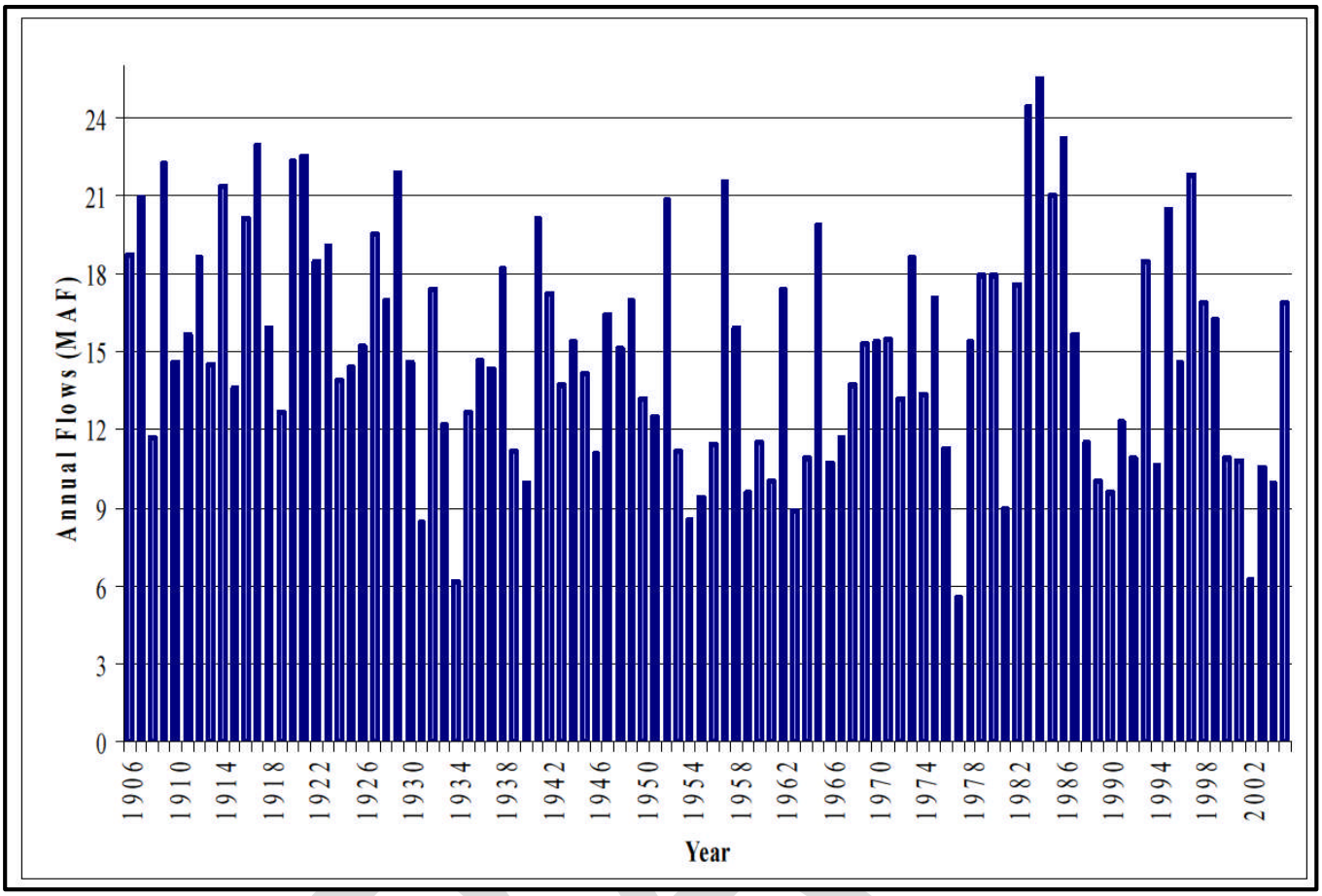

Figure 32 Colorado River Annual Flow (MAF) 1906-2002

6.3.4 Colorado River Reliability

Under the Law of the River, IID has significant historical legal protections in place to maintain its 3.1 MAF Priority 3a water right to consumptive use of Colorado River water even during lower Colorado River flow periods.

6.3.5 Historical Data on the Colorado River Water Supply

The Colorado River flow at Lees Ferry has been gauged since 1921. By removing reservoir and diversion effects, the USBR has created a "natural flow" record for this site. The long-term (1906- 2004) average natural flow is estimated to be about 15.1 MAF based on the gage record. The annual natural flow records are shown in **Figure 32**. A few important points should be noted from the natural flow record:

- The period 1906-1930 and prior was the available gauge record when many of the Colorado River compacts were drafted. This period had a 10-year running average flow of about 17.0 MAF, which is higher than almost any other period in the gage record.

- The 10-year running average from 1934 to 1984 was almost always less than 15 MAF, meaning that the 1922 Compact apportioning 7.5 MAF to the Upper and Lower Basins could not have been fully satisfied for most of this 50-year period.

- Allocations from the Colorado River total 16.5 MAF, divided as 7.5 MAF each to the Upper and Lower Basins, and 1.5 MAF to Mexico. The long-term average natural flows from the gauge record are less than these total allocations.

IID has a longstanding right to import Colorado River water, and holds legal title to all its water and water rights in trust for landowners and water users within the District (California Water Code §§20529 and 22437; Bryant v. Yellen, 447 U.S. 352, 371 (1980), fn.23.). These date from as early as 1885, when a number of individuals, as well as the California Development Company, made a series of appropriations of Colorado River water pursuant to stipulations of California law for use in the Imperial Valley.

The right to water from the Colorado River is governed by numerous compacts, state and federal laws, court decisions and decrees, contracts, and regulatory guidelines collectively known as the "Law of the River." These documents apportion the water and regulate the use and management of the Colorado River among the seven basin states and Mexico. A brief review of those parts that impact the Imperial Irrigation District follows:

6.3.6 Colorado River Compact (1921)

In 1921, representatives from the seven Colorado River basin states, with the authorization of their legislatures and at the urging of the federal government, began negotiations regarding the distribution of water from the Colorado River. In November of 1922, the representatives from the upper basin states (Colorado, New Mexico, Utah and Wyoming) and lower (Arizona, California, and Nevada) signed the Colorado River Compact (Compact), an interstate agreement giving each basin perpetual rights to annual apportionments of 7.5 million acre-feet (MAF) of Colorado River water.

6.3.7 Boulder Canyon Project Act (1928)

The Compact was made effective by provisions in the 1928 Boulder Canyon Project Act, which authorized construction of Hoover Dam and the All-American Canal, and served as the United States' consent to accept the Compact. Officially enacted on June 25, 1929, through a Presidential Proclamation, this act resulted in ratification of the Compact by six of the basin states and required California to limit its annual consumptive use to 4.4 MAF of the lower basin's apportionment plus not less than half of any excess or surplus water unapportioned by the Compact. Arizona refused to sign and subsequently filed a lawsuit. California abided by this federal mandate through the implementation of its 1929 Limitation Act. The Boulder Canyon Project Act further authorized the Secretary to "contract for the storage of water... and for the delivery thereof for irrigation and domestic uses," and further defined the lower basin's 7.5 MAF apportionment split, with an annual allocation of 0.3 MAF to Nevada and 2.8 MAF to Arizona. While the three states never formally accepted or agreed to these terms, a 1964 Supreme Court decision (Arizona v. California, 373 U.S. 546) declared their consent to be inconsequential since the Boulder Canyon Project Act was authorized by the Secretary.

6.3.8 California Seven-Party Agreement (1931)

Following implementation of the Boulder Canyon Project Act, the Secretary requested that California make recommendations regarding distribution of its allocation of Colorado River water. In August 1931, under chairmanship of the State Engineer, the California Seven-Party Agreement was developed and authorized by the affected parties to prioritize California water rights. The Secretary accepted this agreement and established these priorities through General Regulations issued in September of 1931.

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The first four priority allocations account for California's annual apportionment of 4.4 MAF, with agricultural entities using 3.85 MAF of that total. The remaining priorities are defined for years in which the Secretary declares that excess waters are available.

6.3.9 Arizona v. California US Supreme Court Decision (1964, 1979)

In 1963, the Supreme Court issued a decision settling a 25-year-old dispute between Arizona and California, which stemmed from Arizona's desire to build the Central Arizona Project to enable use of its full apportionment. California argued that Arizona's use of water from the Gila River, a Colorado River tributary, constituted use of its Colorado River apportionment, and that California had developed a historical use of some of Arizona's apportionment, which, under the doctrine of prior appropriation, precluded Arizona from developing the project.

The Supreme Court rejected California's arguments, enjoined the Secretary from delivering water outside the framework of apportionments defined by the law, and mandated the preparation of annual reports documenting the consumptive use of water in the three lower basin states. In 1979, the Supreme Court issued a Supplemental Decree which addressed Present Perfected Rights (PPRs) referred to in the Colorado River Compact and in the Boulder Canyon Project Act. These rights are entitlements essentially established under state law, and have priority over later contract entitlements.

On March 27, 2006, the Supreme Court issued a Consolidated Decree to provide a single reference to the provisions of the original 1964 decrees and several subsequent decrees (1966, 1979, 1984, and 2000) that stemmed from the original ruling. This decree also reflects the settlements of the federal reserved water rights claim for the Fort Yuma Indian Reservation.

6.3.10 Colorado River Basin Project Act (1968)

Congress authorized construction of a number of water development projects in both the upper and lower basins, including the Central Arizona Project (CAP) in 1968. The act made the priority of the CAP water supply subordinate to California's apportionment in times of shortage, and directed the Secretary to prepare, in consultation with the Colorado River Basin states, long-range operating criteria for the Colorado River reservoir system.

6.3.11 Quantification Settlement Agreement (QSA) and Related Agreements

The Quantification Settlement Agreement (QSA) and Related Agreements that became effective in October 2003 are a set of inter-related contracts that settle certain disputes among the United States, the State of California, Imperial Irrigation District (IID), Metropolitan Water District (MWD), Coachella Valley Water District (CVWD) and the San Diego County Water Authority (SDCWA) that became effective in October 2003. The agreements resolve, for a period of 35 to 75 years, issues regarding the reasonable and beneficial use of Colorado River water; the ability to conserve, transfer and acquire conserved Colorado River water; the quantification of Priorities 3 and 6 within California for the use of Colorado River water; and the obligation to implement and fund environmental impact mitigation related to the above.

Conserved water transfer agreements between IID and SDCWA, IID and CVWD and IID and MWD are all part of the QSA and Related Agreements. These contracts identify the conserved water volumes and transfer schedules for IID along with price and payment terms. As specified in the agreements, IID will transfer to SDCWA up to 200,000 AFY, and to CVWD up to 103 AFY, and MWD 105,000 Acre

AFY of water conserved from delivery system improvements and on-farm efficiency improvements, all in return for payments totaling billions of dollars. In addition, IID will transfer up to 67,000 AFY of conserved water from the lining of the All- American Canal to SDCWA and certain San Luis Rey Indian Tribes 16,500 AFY in exchange for the payment of all lining project costs and a grant to IID of certain rights to use the conserved water.

As a result of the QSA and Related Agreements, IID will be able to more efficiently deliver Colorado River water to the Imperial Valley. Imperial Valley water users will be able to more effectively irrigate their farms, thus preserving Imperial Valley water rights and agricultural output, with costs and impacts compensated by the payments to IID for the conserved water. IID will face minimum future risk from challenges to the purpose or reasonableness of IID's water use, and thus enable the Imperial Valley to rely upon the large senior Colorado River water rights IID possesses.

In short, the QSA and Related Agreements provide the methods and the means to allow IID to elevate its Colorado River water use to efficient 21st Century standards and ensure the continued availability.

In October 2003, all the water districts, the State and the Interior reached agreement on the final terms of the QSA and related agreements. For closure among State interests, three elements proved critical. First, the IID, SDCWA, CVWD and MWD agreed to provide four sources of economic support for Salton Sea restoration: (1) conditional new transfers between the IID/CDWR and CDWR/MWD as described in the succeeding paragraph; (2) conditional reassignment of mitigation water to CDWR for resale to MWD at a price of $250/AF (in 2003 dollars) per acre-foot delivered to the Salton Sea, provided that the reassignment is consistent with the restoration of the Salton Sea and satisfies other conditions; (3) a joint contribution by the IID, CVWD, and SDCWA to the Salton Sea Restoration Fund established by the California Legislature with payments totaling a present value of $30 million; and (4) payment by MWD to a Salton Sea Restoration Fund of $20 (in 2003 dollars) per acre-foot for all special surplus water MWD receives from the reinstatement of the Interim Surplus Guidelines.

As part of the final negotiations, the IID and CDWR entered into a conditional agreement for the IID to sell CDWR an aggregate of 800,000 acre-feet of conserved water, through the year 2017 for delivery to the Salton Sea as mitigation for impacts of the SDCWA transfer. CDWR is responsible for all mitigation costs, including environmental and any socioeconomic impacts from land fallowing used to make water available to CDWR. The water will be sold to CDWR at a price of $175/acre foot (in 2003 dollars). Therefore, the price received by the IID in any year equals $175/acre foot adjusted by changes in a contractually defined price index from 2003 to the year of delivery.

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Compromise IID QSA Delivery Schedule (KAF)									
		Delivery				Conservation Practice			
	1	2	3	4	5	6	7	8	9
Agreement Year	Calendar Year	IID to SDCWA	IID to CVWD	IID to MWD	Total Delivery (Co 2+3+4) or (Col 6+7)	Efficiency for Delivery	Fallowing for Delivery	Fallowing for Mitigation	Total Fallowing (Col 7+8)
4	2006	40	0	0	40	-	40	20	60
5	2007	50	0	0	50	-	50	25	75
6	2008	50	4	0	54	4	50	25	75
7	2009	60	8	0	68	8	60	30	90
8	2010	70	12	0	82	12	70	35	105
9	2011	80	16	0	96	16	80	43	120
1	2012	90	21	0	111	21	90	45	135
11	2013	100	26	0	126	46	80	70	150
12	2014	100	31	0	131	47	60	90	150
13	2015	100	36	0	136	96	40	110	150
14	2016	100	41	0	141	121	20	130	150
15	2017	100	45	0	145	145	0	150	150
16	2018	130	63	0	193	193	0	0	0
17	2019	160	38	0	228	228	0	0	0
18	2020	192.5	73	2.5	268	268	0	0	0
19	2021	205	78	5	288	288	0	0	0
20	2022	202.5	83	2.5	288	288	0	0	0
21	2023	200	88	0	288	288	0	0	0
22	2024	200	93	0	293	293	0	0	0
23	2025	200	98	0	298	298	0	0	0
24	2026	200	103	0	303	303	0	0	0
25	2027	200	103	0	303	303	0	0	0
26	2028	200	103	0	303	303	0	0	0
	2029-	200	103	0	303	303	0	0	0
46-75	2048-2077	200	50	0	250	250	0	0	0

Figure 33: Compromise IID QSA Delivery Schedule (KAF)

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6.3.12 Canal Lining Projects

In 1986, Congress passed Public Law 100-675 that governs the allocation of water conserved by the lining of the All-American and Coachella canals and assigns responsibility for the repayment of costs. Water conserved by these projects was to be made available to the IID, CVWD, and MWD in accordance with the priorities established under the Seven-Party Agreement. Parties who use the conserved water were to reimburse the party constructing the project for an apportioned share the amortized capital costs, plus an apportioned share of the costs of operation, maintenance, and any net costs the lining projects impose on IID. In 1988, Congress authorized the Secretary of the Interior to develop a well field or construct a new lined canal or line previously unlined portions of the All-American Canal in southeastern California, and to enter into an agreement with the MWD and/or certain other California water agencies to fund the lining project. The canal is owned by the United States. An estimated 67,700 acre-feet of water a year that was lost by seepage into groundwater from unlined portions of the canal is expected to be saved by this project and made available for use according to the terms of the QSA and related agreements.

On September 25, 1998, the California Legislature passed Senate Bill 1765 authorizing the sum of $200 million be used by the Director of CDWR to finance and arrange for lining portions of the All-American and Coachella Canals. The “Agreement for the Funding of the All-American Canal Lining Project” was developed by the IID and CDWR, and approved by the Board of Directors of the IID on July 24, 2001. Pursuant to the agreement with CDWR, CDWR will reimburse the IID for all costs up to $126 million associated with the canal lining project. The project also qualifies for an additional $9.5 million of Proposition 50 funding approved in the November 2002 general election. The total amount of funding reserved for the canal lining project from the State of California is $135.5 million.

6.3.13 All-American Canal

The All-American Canal (AAC) is the Imperial Valley's lifeline from the Colorado River. In 2008, 2,878,320 acre-feet of Colorado River water was accounted for by water balance through the All-American Canal to nine cities and 475,000 acres of farmable lands throughout the Imperial Valley.

Considered an engineering marvel, even by today's standards, the 80-mile gravity flow All-American Canal begins at Imperial Dam on the Colorado River about 20 miles northeast of Yuma, Arizona. Dropping a total of 175 feet between Imperial Dam and IID’s Westside Main Canal, the All-American Canal extends south and then west, parallel to the Mexican/American border much of the way.

Crossing 14 miles of sand dunes on the east side of the Imperial Valley, the All-American Canal ends in the southwest corner of the Imperial Irrigation District's delivery area. The AAC until 2009 was unlined, resulting in an estimated 67,700AFY in seepage. The All-American Canal Lining Project included 23 miles of concrete lining.

The Project consisted of the planning; environmental compliance and permitting activities; preparation of schedules, plans, specifications and cost estimates; administration; design; construction; and implementation of environmental mitigation measures required to construct the 23-mile concrete lined canal parallel to the existing earthen canal, from one mile west of Pilot Knob to Drop 3. The new concrete lined section of the AAC is expected to conserve 67,700 acre-feet per year of Colorado River water that was historically lost to seepage, mainly into Mexico.

The new section of concrete lined AAC was constructed parallel to the existing AAC alignment using conventional construction methods and now permitted the current unlined section of the AAC to remain in service and to provide normal water deliveries to IID customers during construction. IID operates and maintains the Project in accordance with its existing contract with USBR. Construction was completed in 2009.

6.3.14 Colorado River Environmental Considerations

Several fish species and other wildlife species either directly or indirectly have the potential to affect Colorado River options, thus changing power operations and the amount of water deliveries to the lower basin. A number of species that are on either endangered or threatened lists under the Endangered Species Act are present in the area of the Lower Colorado River, including among others, the bonytail chub, razorback sucker, southwestern willow flycatcher and Yuma clapper rail. To address this issue, a broad-based State/Federal/tribal/private regional partnership has been formed, which includes water, hydroelectric power and wildlife management agencies in Arizona, California and Nevada. The objective is to accommodate current water diversions and power production and optimize opportunities for future water and power development while working toward the conservation of habitat and toward recovery of the endangered species. These efforts also have the objective of reducing the likelihood of additional “threatened/endangered” species listings.

6.3.15 Operations of the Water System

The Water Control Section of the IID’s Water Department is responsible for the transmission of water through the main canal system and its diversion to the laterals for distribution to the users. Water distribution is a complicated task that involves adjusting the appropriate check, delivery and other structures. There are approximately 3,400 check structures and 5,600 irrigation delivery structures within the system. A coordinated procedure has evolved to handle this complex distribution process.

Groundwater is generally unusable for municipal potable water supplies or irrigation in the Imperial Valley. The salinity, or total dissolved solids count, is too high.

The deepest groundwater is in some cases is believed to be moderately altered ocean water. Above this level, the water may consist of residuals from prehistoric fresh water lakes that filled the Salton Trough. Waters at this level vary from low to moderate salinity. The next higher layers are high temperature, and in places highly saline waters.

In the central part of the Imperial Valley, the groundwater has a higher salinity than the Colorado River water, which has an approximate salinity of 750mg/L. Most wells had total dissolved solids concentrations of between 1,000 and 3,000 mg/L. The ionic composition of the water in the central part of the valley is similar to that of the East Mesa. However, as the total dissolved solids concentration increases, the ionic composition becomes more dominated by sodium chloride. The pH of these waters is usually slightly basic, with an occasional value less than seven.

In the western section of the valley, water quality varies widely. Almost all of the wells in Coyote Valley have total dissolved solids concentrations below 500 mg/L; however, West Mesa wells have levels between 1,800 and 5,200 mg/L. The shallow aquifers beneath the Imperial Valley are affected by canal seepage and deep percolation of applied irrigation water (raw Colorado River water) from agricultural fields.

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Percolation from agricultural fields has resulted in local salinities higher than Colorado River water because of the leaching of salts from these fields. In other areas, mounds of good quality fresh water have resulted from seepage from irrigation canals. This has occurred significantly in the unlined major canals and the All-American, East Highline, and Coachella canals.

6.4 Stormwater

The City does not treat and reuse stormwater.

6.5 Wastewater and Recycled Water

The City owns and operates a waste water treatment facility but does not produce or use recycled water.

6.5.1 Recycled Water Coordination

Provide, to the extent available, information on recycled water and its potential for use as a water source in the service area of the urban water supplier. The preparation of the plan shall be coordinated with local water, wastewater, groundwater, and planning agencies that operate within the supplier's service area (10633).

6.5.1.1 Recycled Water Feasibility

The City of Brawley provides sewer service and has a wastewater treatment plant which produces secondary (includes de-nitrification) treatment level wastewater. Treated wastewater is discharged to percolation ponds.

Treated wastewater in the City of Brawley does not currently meet Title 22 Standards, and no wastewater is currently recycled within the City's service boundary. The WWTP discharges the treated wastewater to IID drainage canals, where it eventually enters the Salton Sea.

There are potential uses for recycled water that include but is limited to: landscape irrigation, industrial reuse, wetlands, some agricultural uses (consistent with State regulations) and wildlife habitat enhancement. There are some recycled water projects that have been proposed in the Imperial Valley for use in Solar and Geothermal plants.

<u>Keystone Regional Water Reclamation Facility & Wastewater Collection System</u>

In February of 2006, the County of Imperial approved the Mesquite Lake Specific Plan
Area (MLSPA), defining land use and development standards for approximately 5,100 acres. Located within the central Imperial County area, between the Cities of Brawley and Imperial, the area has seen many proposed projects and generated considerable interest. However, the high cost of initial infrastructure – specifically, a reliable wastewater treatment facility to generate recycled water at a reasonable cost-benefit ratio – has presented an obstacle to progress.

The 2010 UWMP indicated that the City of Brawley was working with the City of Imperial to seek funding to build the proposed recycled water facility. Unfortunately this goal was not realized and it is expected the project will not be constructed within the foreseeable future. The City has indicated this is partially due to the impoverished nature of the area and lack of resources to achieve the required funding goals. Currently the project has been shelved and the plans will remain in the City's possession should the funds become available for a future project.

6.5.2 Wastewater Collection, Treatment, and Disposal

(Describe) the wastewater collection and treatment systems in the supplier's service area, including a quantification of the amount of wastewater collected and treated and the methods of wastewater disposal (10633(a)).

6.5.2.1 Treatment Process Description

The city owns and operates a wastewater collection, treatment and disposal system and provides sewerage service to the City of Imperial. The wastewater treatment facility located at 701 East 14th Street, Imperial, California. The wastewater flows through the Dolson Drain, Lilac Drain, Rose Drain, Alamo River and then enters the Salton Sea.

The City owns and operates the wastewater treatment plant. As shown in **Figure 34** below, the wastewater treatment plant treats an average daily flow (ADF) of 2.2 mgd and a peak daily flow (PDF) of 2.76 mgd. The wastewater treatment plant consists of an influent pumping station, grit chamber, two parallel oxidation ditches, two secondary clarifiers, an ultraviolet disinfection system, and sludge drying beds.

The City previously upgraded the facility in the following ways: 1) installed a new screening mechanism. Retrofitted the existing headworks channel with a screening dewatering system; 2) Installed a packaged lift station, wet well, and appurtenant piping to deliver water from the existing splitter box to the extended aeration/activated sludge basin; 3) Installed an extended aeration/activated sludge basin with integral clarifier treatment system with separate building to house the blowers; 4) Removed the existing ultraviolet disinfection system and replaced with a higher output capacity UV system; 5) Constructed 10 additional sludge drying beds; 6) Upgraded the existing electrical to accommodate the proposed facilities.

Wastewater Treatment					
Treatment Plant Name	Location (City)	Average Daily (2015)	Maximum Daily (2015)	Year of Planned Build-out	Planned Maximum Daily Volume
WWTP	Brawley	2.2 MGD	2.76 MGD	N/A	5.9 MGD

Figure 34: Wastewater Treatment

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Table 6-2 Retail: Wastewater Collected Within Service Area in 2015						
☐	There is no wastewater collection system. The supplier will not complete the table below.					
	Percentage of 2015 service area covered by wastewater collection system *(optional)*					
	Percentage of 2015 service area population covered by wastewater collection system *(optional)*					
Wastewater Collection			**Recipient of Collected Wastewater**			
Name of Wastewater Collection Agency	**Wastewater Volume Metered or Estimated?** *Drop Down List*	**Volume of Wastewater Collected in 2015**	**Name of Wastewater Treatment Agency Receiving Collected Wastewater**	**Treatment Plant Name**	**Is WWTP Located Within UWMP Area?** *Drop Down List*	**Is WWTP Operation Contracted to a Third Party?** ***(optional)*** *Drop Down List*
Add additional rows as needed						
City of Brawley	Metered	821	City of Brawley WWTP	Brawley WWTP	No	No
Total Wastewater Collected from Service Area in 2015:		821				
NOTES:						

Figure 35: Table 6-2 Retail: Wastewater Collected Within Service Area in 2015

Table 6-3 Retail: Wastewater Treatment and Discharge within Service Area in 2015										
☐	No wastewater is treated or disposed of within the UWMP service area. The supplier will not complete the table below.									
Wastewater Treatment Plant Name	Discharge Location Name or Identifier	Discharge Location Description	Wastewater Discharge ID Number *(optional)*	Method of Disposal *Drop down list*	Does This Plant Treat Wastewater Generated Outside the Service Area?	Treatment Level *Drop down list*	2015 volumes			
							Wastewater Treated	Discharged Treated Wastewater	Recycled Within Service Area	Recycled Outside of Service Area
Add additional rows as needed										
Brawley WWTP	1	OUTFALL		River or creek outfall	No	Secondary, Disinfected - 23	821	821	0	0
						Total	821	821	0	0
NOTES:										

Figure 36: Table 6-3 Retail: Wastewater Treatment and Discharge within Service Area in 2015

(Describe) the quantity of treated wastewater that meets recycled water standards, is being discharged, and is otherwise available for use in a recycled water project (10633(b)).

There is no current recycled water use in Brawley. The Keystone Regional Water Reclamation Facility and Wastewater Collection System, if the funding should become available to construct such a facility, the plant would increase the City's capacity to treat wastewater by 5.0 MGD.

6.5.3 Recycled Water System

(Describe) the recycled water currently being used in the supplier's service area, including, but not limited to, the type, place, and quantity of use (10633(c)).

6.5.4 Recycled Water Beneficial Uses

(Describe and quantify) the potential uses of recycled water, including, but not limited to, agricultural irrigation, landscape irrigation, wildlife habitat enhancement, wetlands, industrial reuse, groundwater recharge, indirect potable reuse, and other appropriate uses, and a determination with regard to the technical and economic feasibility of serving those uses (10633(d)).

The following **Figure 37** shows the curt and projections Recycled Water benefits. At this time, unfortunately, there are none as the City does currently use, nor have future plans for, recycled water.

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Table 6-4 Retail: Current and Projected Recycled Water Direct Beneficial Uses within Service Area									
☑	Recycled water is not used and is not planned for use within the service area of the supplier. The supplier will not complete the table below.								
Name of Agency Producing (Treating) the Recycled Water:									
Name of Agency Operating the Recycled Water Distribution System:									
Supplemental Water Added in 2015									
Source of 2015 Supplemental Water									
Beneficial Use Type *These are the only Use Types that will be recognized by the DWR online submittal tool*		**General Description of 2015 Uses**	**Level of Treatment** *Drop down list*	**2015**	**2020**	**2025**	**2030**	**2035**	**2040 (opt)**
Agricultural irrigation									
Landscape irrigation (excludes golf courses)									
Golf course irrigation									
Commercial use									
Industrial use									
Geothermal and other energy production									
Seawater intrusion barrier									
Recreational impoundment									
Wetlands or wildlife habitat									
Groundwater recharge (IPR)									
Surface water augmentation (IPR)									
Direct potable reuse									
Other	Type of Use								
			Total:	0	0	0	0	0	0
IPR - Indirect Potable Reuse									
NOTES: The City does not use recycled water									

Figure 37: Table 6-4 Retail: Current and Projected Recycled Water Direct Beneficial Uses within Service Area

(Describe) the projected use of recycled water within the supplier's service area at the end of 5, 10, 15, and 20 years, and a description of the actual use of recycled water in comparison to uses previously projected pursuant to this subdivision (10633(e)).

As shown on **Figure 38**, Recycled water was not used in 2010 nor projected for use in 2015. The Integrated Regional Water Management Plan (IRWMP) that is currently being developed will evaluate regional recycling opportunities and potential grant funding for projects consistent with the Imperial regional goal and objectives, and the State's preferences and priorities.

Table 6-5 Retail: 2010 UWMP Recycled Water Use Projection Compared to 2015 Actual			
☑	Recycled water was not used in 2010 nor projected for use in 2015. The supplier will not complete the table below.		
Use Type *These are the only Use Types that will be recognized by the WUEdata online submittal tool*		**2010 Projection for 2015**	**2015 actual use**
Agricultural irrigation			
Landscape irrigation (excludes golf courses)			
Golf course irrigation			
Commercial use			
Industrial use			
Geothermal and other energy production			
Seawater intrusion barrier			
Recreational impoundment			
Wetlands or wildlife habitat			
Groundwater recharge (IPR)			
Surface water augmentation (IPR)			
Direct potable reuse			
Other	Required for this use		
	Total	0	0
NOTES: No recycle uses			

Figure 38: Table 6-5 Retail: 2010 UWMP Recycled Water Use Projection Compared to 2015 Actual

6.5.5 Actions to Encourage and Optimize Future Recycled Water Use

(Describe the) actions, including financial incentives, which may be taken to encourage the use of recycled water, and the projected results of these actions in terms of acre-feet of recycled water used per year (10633(f)).

(Provide a) plan for optimizing the use of recycled water in the supplier's service area, including actions to facilitate the installation of dual distribution systems, to promote recirculating uses, to facilitate the increased use of treated wastewater that meets recycled water standards, and to overcome any obstacles to achieving that increased use (10633(g)).

The plans and specifications for the Keystone Regional Water Reclamation Facility & Wastewater Collection System have been prepared and are ready for construction. The city is seeking funding sources for the recycled water treatment facility and installing a dual distribution system. It is currently beyond the City's resources to realize the construction of this facility. A summary of plans are shown on **Figure 39** below.

Table 6-6 Retail: Methods to Expand Future Recycled Water Use			
☑	Supplier does not plan to expand recycled water use in the future. Supplier will not complete the table below but will provide narrative explanation.		
	Provide page location of narrative in UWMP		
Name of Action	**Description**	**Planned Implementation Year**	**Expected Increase in Recycled Water Use**
Add additional rows as needed			
		Total	0
NOTES: City does not have the infrastructure to recycle water			

Figure 39: Table 6-6 Retail: Methods to Expand Future Recycled Water Use

6.6 Desalinated Water Opportunities

Describe the opportunities for development of desalinated water, including, but not limited to, ocean water, brackish water, and groundwater, as a long-term supply (10631(h)).

There are no plans to use and treat the brackish groundwater as a long-term supply in the Imperial Valley.

There are no plans for the City of Brawley to use and treat the brackish groundwater as a long-term supply in the Imperial Valley. There are no feasible opportunities for the City of Brawley to independently development of desalinated water sources within the planning horizon of the 2015 UWMP, because of the supply availability and cost effectiveness of treating surface water from the Colorado River. If it becomes financially feasible in the future, there may be consideration for desalination of brackish groundwater and drain water on a regional basis.

6.7 Exchanges or Transfers

Describe the opportunities for exchanges or transfers of water on a short-term or long-term basis (10631(d))

The City does not have plans to exchange or transfer water. All agencies within the Imperial Valley utilize the same raw source water from the Imperial Irrigation District. However, if connected to another water system there would be the benefit of an emergency water supply. The City will evaluate the potential for long term possibilities. The City is working in cooperation with the City of Imperial to construct a regional reclaim facility to divert some untreated wastewater from its collection system.

6.8 Future Water Projects

…The urban water supplier shall include a detailed description of expected future projects and programs… that the urban water supplier may implement to increase the amount of the water supply available to the urban water supplier in average, single-dry, and multiple-dry water years. The description shall identify specific projects and include a description of the increase in water supply that is expected to be available from each project. The description shall include an estimate with regard to the implementation timeline for each project or program. (10631(g)).

Table 6-7 Retail: Expected Future Water Supply Projects or Programs						
☑	No expected future water supply projects or programs that provide a quantifiable increase to the agency's water supply. Supplier will not complete the table below.					
☐	Some or all of the supplier's future water supply projects or programs are not compatible with this table and are described in a narrative format.					
	Provide page location of narrative in the UWMP					
Name of Future Projects or Programs	**Joint Project with other agencies?**		**Description (if needed)**	**Planned Implementation Year**	**Planned for Use in Year Type** *Drop Down List User may select more than one.*	**Expected Increase in Water Supply to Agency** *This may be a range*
	Drop Down List (y/n)	*If Yes, Agency Name*				
Add additional rows as needed						
NOTES:						

Figure 40: Table 6-7 Retail: Expected Future Water Supply Projects or Programs

Although the City does not have any future water supply projects planned to increase the amount of the water supply available, the City of Brawley is a participant in the Imperial Water Forum. The Imperial IRWMP being developed by the Water Forum includes evaluation of potential future projects and programs that may be implemented to increase the amount of the water supply available in all types of years. The Imperial IRWMP will contain an implementation plan and listing of projects to be implemented to increase the water supply portfolio. As a participant in the IRWMP, the City is working within the larger Region through the collaborative IRWM effort to increase the amount of supply within the Region.

6.9 Summary of Existing and Planned Sources of Water

Identify and quantify, to the extent practicable, the existing and planned sources of water available to the supplier over the same five-year increments described in subdivision (a) (10631(b)).

Table 6-8 Retail: Water Supplies — Actual				
Water Supply		2015		
Drop down list *May use each category multiple times. These are the only water supply categories that will be recognized by the WUEdata online submittal tool*	**Additional Detail on Water Supply**	**Actual Volume**	**Water Quality** ***Drop Down List***	**Total Right or Safe Yield *(optional)***
Add additional rows as needed				
Purchased or Imported Water	IID	1,987	Drinking Water	1,987
	Total	1,987		1,987
NOTES:				

Figure 41: Table 6-8 Retail: Water Supplies — Actual

Figure 41 shows the actual real water supplies within the City's service area, 100% of which the City has a right to. The City's water supply is significantly lower than their total water allotment from IID and thus no predictable water shortage issues are foreseen at this time.

(Provide a) detailed description and analysis of the amount and location of groundwater that is projected to be pumped by the urban water supplier. The description and analysis shall be based on information that is reasonably available, including, but not limited to, historic use records (10631(b)(4)).

The City does not use groundwater. The City's retail water supply and project water supply details are shown below in **Figure 42**.

Table 6-9 Retail: Water Supplies — Projected									
Water Supply	Additional Detail on Water Supply	Projected Water Supply *Report To the Extent Practicable*							
Drop down list *May use each category multiple times. These are the only water supply categories that will be recognized by the WUEdata online submittal tool*		2020		2025		2030		2035	
		Reasonably Available Volume	Total Right or Safe Yield *(optional)*	Reasonably Available Volume	Total Right or Safe Yield *(optional)*	Reasonably Available Volume	Total Right or Safe Yield *(optional)*	Reasonably Available Volume	Total Right or Safe Yield *(optional)*
Add additional rows as needed									
Purchased or Imported Water		2,007		2,027		2,047		2,067	
Supply from Storage	0								
Groundwater	0								
Surface water	0								
Recycled Water	0								
Desalinated Water	0								
Stormwater Use	0								
Groundwater	0								
Exchanges	0								
Other	0								
	Total	2,007	0	2,027	0	2,047	0	2,067	0
NOTES:									

Figure 42: Table 6-9 Retail: Water Supplies — Projected

6.10 Climate Change Impacts to Supply (Optional)

Climate change impacts are negligible as the City's water demands are significantly lower than their available supply.

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Chapter 7 – Water Supply Reliability

7.1 Constraints on Water Sources

For any water source that may not be available at a consistent level of use, given specific legal, environmental, water quality, or climatic factors, describe plans to supplement or replace that source with alternative sources or water demand management measures, to the extent practicable (10631(c)(2)).

The main factors that can cause water supply shortages for the City are water pollution, earthquakes and long term energy outages at the treatment and pumping facilities.

The Imperial Irrigation District is the only supplier of water to the City, and there is no alternative source water. The water quality of the agricultural drains, New River and Alamo River are high in total dissolved solids and other contaminants and are as such unusable as a potable or irrigation water source.

The City receives water from the All-American and Central Main Canals. If either the All-American Canal or Central Main Canal were shut down, water could not be delivered to the treatment plant. The shutdown could be for scheduled maintenance or as a result of an emergency, such as an earthquake. In October 1979, an earthquake caused levee and slope failures along the All-American Canal east of El Centro, severely limiting water flow. This is the only time during the last 25 years that the All-American Canal was shut down.

Maintenance is scheduled to be performed monthly on the South Date Canal and Dahlia Lateral. Typically, however, the South Date Canal and the Dahlia Lateral are shut down about three times annually, usually lasting approximately three days each time. The Central Main Canal and the All-American Canal are seldom shut down. To perform maintenance on the Central Main Canal, the water level is lowered but service is not completely interrupted. According to plant operators, this is done every five to ten years.

In the event that there is a water shortage in the Lower Colorado River Basin, the Imperial Irrigation District/San Diego County Water Authority water transfer agreement states that both agencies will share, on a pro-rata basis, any reductions in water to Imperial Irrigation District should a shortage declaration by the Secretary of the Interior for the Lower Colorado River Basin affect the Imperial Irrigation District's water conservation and transfer programs. When the amount of water in usable storage in Lake Mead is less than 15 million acre-feet and the unregulated inflow into Lake Powell is forecasted to be less than 8.8 million acre-feet, the Imperial Irrigation District and the San Diego County Water Authority have agreed to meet and confer to discuss a supplemental water transfer agreement in anticipation of the shortage.

Should operating conditions on the Colorado River indicate Imperial Irrigation District may be impacted by reductions in water deliveries; the Imperial Irrigation District will notify all of its water users by mail and will conduct an educational outreach program in conjunction with the

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local media and municipal water systems. The notice will request all water suppliers, and in particular residential, industrial, and commercial water users, to conserve water on a voluntary basis. Urban water suppliers will be responsible for notifying their customers and implementing their own voluntary water conservation measures and programs.

Urban water supply reductions in the Imperial Unit are not likely to occur during the next twenty years. Urban water supply shortage stage one is voluntary, has cut back conditions of less than 15 percent, and is estimated to provide up to 79 percent of the reduction goal for urban water suppliers. Urban water supply shortage stage two is voluntary, has cut back conditions of 15 percent to less than 25 percent, and is estimated to provide 7 to 12 percent of the reduction goal for urban water suppliers. Urban water supply shortage stage 3 is mandatory, has cut back conditions of 25 percent to less than 35 percent, and is estimated to provide the remainder of any reduction goals for urban water suppliers.

There are no known upcoming factors that will result in inconsistency of supply.

7.1.1 Imperial Irrigation District Supply

It is unlikely that the urban water supply of Imperial Irrigation District would ever be affected, even under shortage or drought conditions on the Colorado River. Urban water use in the Imperial Unit makes up less than four percent of the total water delivered by the Imperial Irrigation District. Under a worst case water supply scenario, the Imperial Irrigation District could meet the demands of urban water users. Due to the high priority of the Imperial Irrigation District's water rights, Colorado River flows, and the storage facilities on the Colorado River it is highly unlikely that Imperial Irrigation District's water supply will be affected, even in dry years.

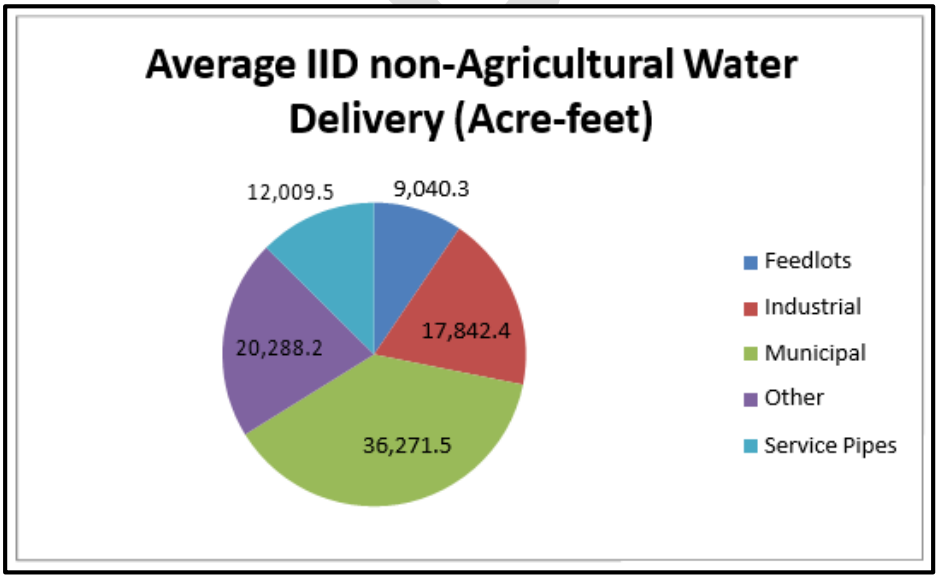

Figure 43 Non-Agricultural Water Delivery by the IID (Acre-Feet) 2006-2009

IID Non-Agricultural Water Delivery					
IID Non-Agricultural Water Delivery (Acre-feet)					
	2006	2007	2008	2009	Average
Feedlots	5,004.6	5,222.5	11,889.1	14,045.0	9,040.3
Industrial	18,398.6	17,424.9	18,447.0	17,099.2	17,842.4
Municipal	35,942.3	36,404.6	36,236.1	36,503.1	36,271.5
Other	20,563.6	21,342.6	19,988.1	19,258.5	20,288.2
Service Pipes	12,001.3	12,001.3	12,034.2	12,001.2	12,009.5
Total	**91,910.4**	**92,395.9**	**98,594.5**	**98,907.0**	**95,452.0**

Figure 44: IID Non-Agricultural Water Delivery

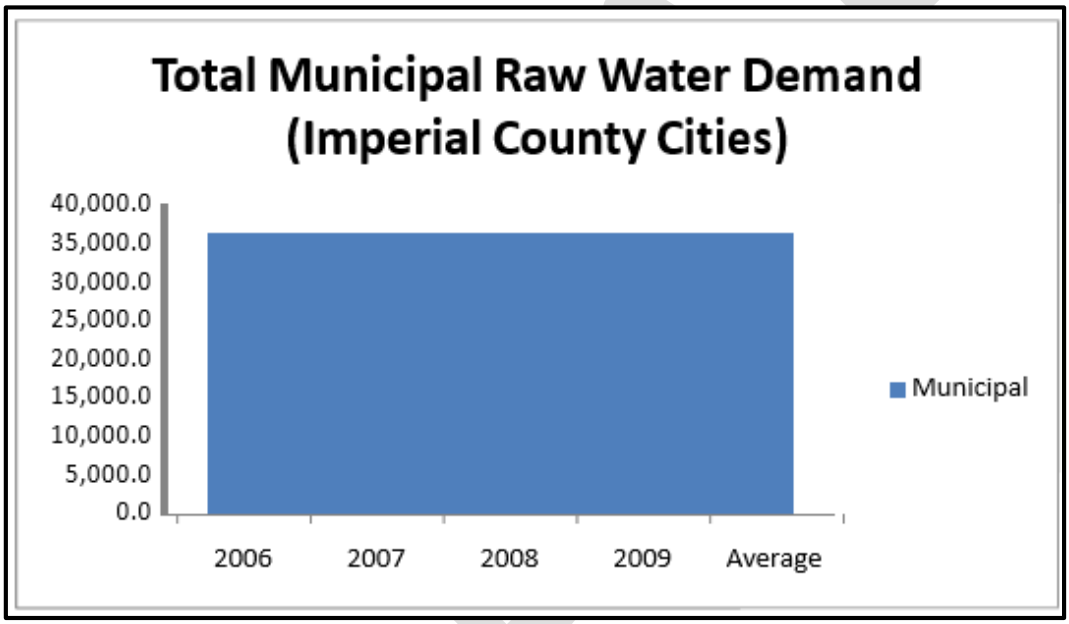

Figure 45 Total Municipal Raw Water Demand (Imperial County Cities) 2006-2009 (Acre-Feet)

Total Estimated Water Flow by the IID					
IID Water Balance Imperial Unit (Acre-feet)					
	2006	2007	2008	2009	Average
Agricultural	2,366,591.9	2,320,920.8	2,413,609.8	2,279,083.9	2,345,051.6
Non-Agricultural	91,910.4	92,395.9	98,594.5	98,907.0	95,452.0
Salton Sea Mitigation Water	0.0	22,399.7	24,793.9	28,989.3	19,045.7
Seepage (Delivery)	86,000.4	86,000.4	79,728.5	64,995.1	79,181.1
Seepage (AAC)	219,861.1	248,816.5	299,527.3	573,644.5	335,462.4
Main Canal Spill	1,638.5	2,212.9	2,422.8	2,248.2	2,130.6
Lateral Spill	118,999.0	112,567.0	117,610.9	106,496.9	113,918.5
Net Evaporation	24,518.4	24,092.3	24,147.0	24,038.1	24,199.0
Total	**2,909,519.7**	**2,909,405.5**	**3,060,434.7**	**3,178,403.0**	**3,014,440.9**

Figure 46: Total Estimated Water Flow by the IID

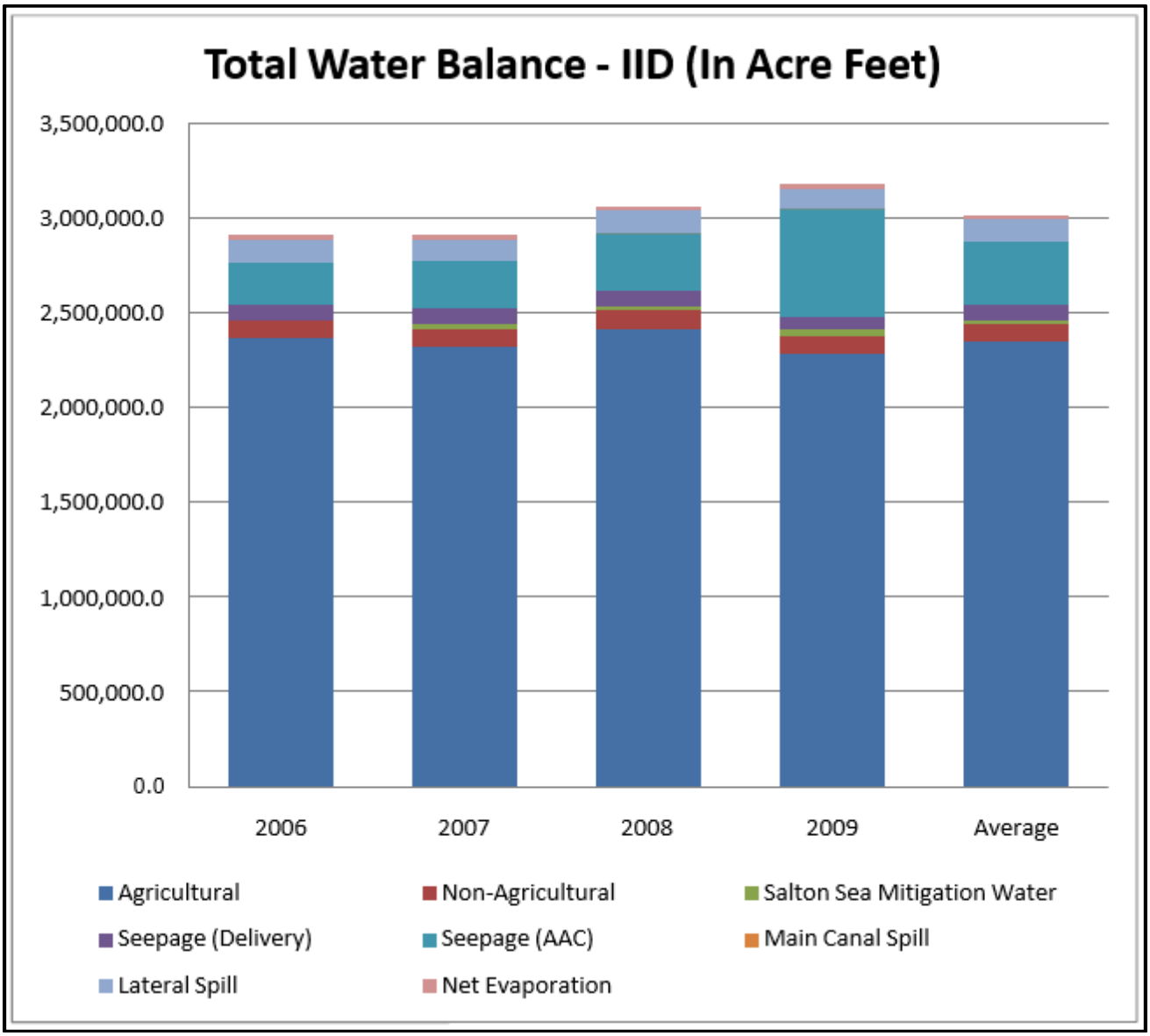

Figure 47: Graphical Representation of the Total Water Balance IID Water Use

The plan shall include information, to the extent practicable, relating to the quality of existing sources of water available to the supplier over the same five-year increments as described in subdivision (a) of Section 10631, and the manner in which water quality affects water management strategies and supply reliability (10634).

The Safe Drinking Water Act ("SDWA") was amended on August 6, 1998 to include "systems providing water for human consumption that deliver water by constructed conveyances such as irrigation canals." On October 27, 1998 the IID signed a Compliance Agreement with the California Department of Public Health ("CDPH") requiring that all domestic users with service pipes to the IID's canal system must receive an alternate supply of water for drinking and cooking. The alternate supply must be of sufficient quality to achieve an equivalent level of public health protection as provided by the SDWA. On May 19, 2000, CDPH provided written notice that the

IID had met the requirements of the Compliance Agreement and that the IID faced no further enforcement actions. The IID continues to meet the conditions of the Compliance Agreement.

To comply with US Environmental Protection Agency (EPA) requirements and avoid termination of canal water service, residents in the IID service area who do not receive treated water service must obtain alternative water service for drinking and cooking from a state-approved provider. To avoid penalties that could exceed $25,000 a day, IID strictly enforces this rule. The section tracks nearly 4,000 raw water service accounts required by the California Department of Public Health (CDPH) to have alternate drinking water service. The section maintains a small- acreage pipe and drinking water database, and provides an annual compliance update to CDPH (Rules and Regulations Governing the Distribution and Use of Water, Jan 2016).

It is not anticipated that there will be any major raw water quality disruptions. The following describe the water quality concerns that were discussed in the Sanitary Survey completed in 2010:

7.1.2 Source Water General Minerals

The bicarbonate alkalinity of the Colorado River raw water ranges from 160 to 200 mg/L. The hardness ranged from 190 to 240 mg/L. TDS ranged from 720 mg/L to 840 mg/L. The following summarizes the monitoring results for alkalinity, hardness and total dissolved solids (TDS) for samples collected from the IID system since 2003.

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Raw Colorado River Water General Tested Mineral Quality (in IID Delivery System)				
Sample Location	Date	TDS (mg/L)	Bicarbonate Alkalinity (mg/L)	Hardness as CaCO3 (mg/L)
Drop 1	10/15/04	770	190	350
Drop 1	10/14/05	800	190	360
Drop 1	10/27/06	830	200	380
Drop 1	10/26/07	820	200	350
Drop 1	10/24/08	820	190	360
East High Line	10/15/04	770	190	350
East High Line	10/14/05	800	190	360
East High Line	10/27/06	830	200	350
East High Line	10/26/07	860	240	370
East High Line	10/24/08	850	190	360
Central Main	10/15/04	790	190	350
Central Main	10/14/05	790	190	360
Central Main	10/27/06	780	190	350
Central Main	10/26/07	840	200	370
Central Main	10/24/08	720	190	370
Westside Main	10/15/04	820	190	350
Westside Main	10/14/05	810	190	360
Westside Main	10/27/06	790	190	370
Westside Main	10/26/07	800	200	360
Westside Main	10/24/08	820	190	360

Figure 48: Raw Colorado River Water General Tested Mineral Quality (in IID Delivery System)

7.1.3 Water Pollution

The City participated in the Sanitary Survey Update 2010. The sanitary survey update provides the most recent information on the potential contaminant sources of the raw water supply. The main concern identified in the Sanitary Survey is the variable Microbial Character of the raw water.

The source water was tested as required by Title 22 California code by the IID. The Results of the bacteria testing showed wide fluctuations in the total coliform, fecal coliform, and E.coli. While some results can be attributed to a passing slug of contaminated water or the testing method, it appears that there is some correlation between the season and high concentrations of bacteria. See **Figure 49** for a graph of the variable total coliforms.

The variable microbial character of the raw water is due in part to:

- Storm Water Runoff and First Flush Events;
- Imperial Irrigation District routine inspection and maintenance procedures;
- Spills into the IID canal system;

- Drowning deaths in the IID canal system and associated response plans;
- Failing Septic Systems along the Colorado River;
- Recreational Activity;
- Agricultural activity.

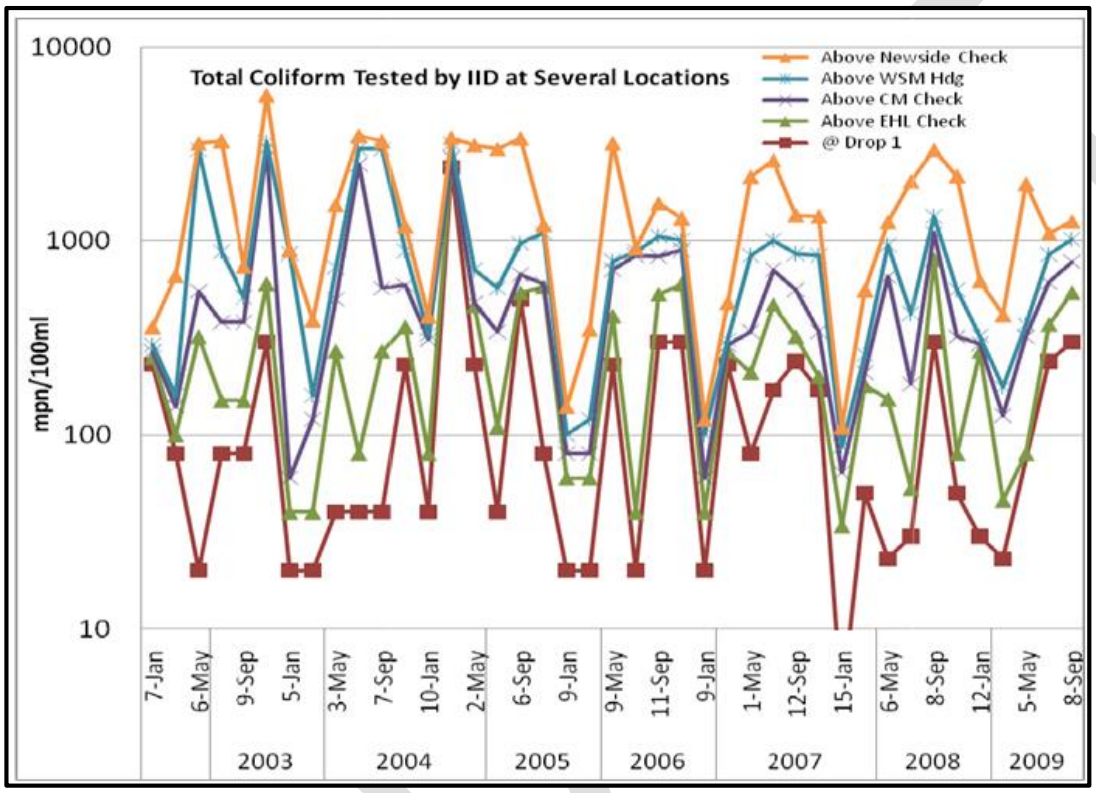

Figure 49 Total Coliform Variations in the IID Canal Delivery System

According to the Sanitary Survey Update 2010, it appears that there is some correlation of high total coliform between the various locations. It also appears that the longer the water is in the IID canal system, the higher the Total Coliform counts. It appears that there is an additional coliform source or that the conditions support bacteria growth within the IID canal system.

Temperature is widely recognized as an important controlling factor in influencing bacterial growth. In climates where water temperatures are warm such as the Imperial Valley, bacterial growth may be very rapid. Most bacteria thrive at temperatures at or around that of the human body 98.6°F (37°C), and some, such as Escherichia coli (E. coli), are normal parts of the human intestinal flora. These organisms are mesophilic (moderate-temperature-loving), with an optimum growth temperature between 77°F (25°C) and 104°F (40°C).

The Sanitary Survey included recommendations for the City to reduce the impact of possible contaminants for the next five years. The City plans to implement the recommendations in the survey.

7.2 Reliability by Type of Year

Describe the reliability of the water supply and vulnerability to seasonal or climatic shortage, to the extent practicable, and provide data for each of the following: (A) an average water year, (B) a single dry water year, (C) multiple dry water years (10631(c)(1)).

Under the *Law of the River*, IID retains a legal right to annual net consumptive use of 3.1 MAF from the Colorado River. Under the terms of various agreements and laws, the annual Colorado River flows would have to be reduced to less than 5.0 MAF (one-third of historic average) before the water supply to IID would be impacted. Nevertheless, in the face of a large-scale water supply disruption in the western states, IID is potentially subject to some water supply reduction.

Even in drought years with Lower Colorado River flows less than 7.5 MAF, the existing laws and agreements provide security that the IID should receive its Present Perfected Rights of 2.6 MAF and its overall water allocation remains at 3.1 MAF. This protection is based on the following:

- 1885 California water right, based on reasonable and beneficial use of approximately 7 MAF, conveyed to IID on June 22, 1916.
- 1922 Colorado River Compact requires the Upper Basin states to ensure the supply of 7.5 MAF at Lees Ferry for use by the Lower Basin states (actually stated as 75 MAF over 10 years). Thus, it is the responsibility of the Upper Basin states to provide the full Lower Basin allocation; even in drought years and even if the 10-year running average annual water supply of the river is less than 15.0 MAF.
- 1931 Seven-Party Agreement provides a schedule of apportionments and priorities, which the parties requested "The Division of Water Resource to, in all respects, recognize… and recommend to the Secretary of the Interior… for insertion in any and all contracts for water made by him pursuant to the terms of the Boulder Canyon Project Act…Pursuant to the provisions . . . California was apportioned 4.4 million AF per year out of the lower basin allocation of 7.5 million AF per year, plus 50% of any available surplus water."
- 1931 IID agreed to limit its California pre-1914 appropriate water rights in quantity and priority to the apportionments and priorities contained in the Seven-Party Agreement.
- 1968 Colorado River Basin Project Act states that all deliveries to the Central Arizona Project (CAP) and all other post-1968 water deliveries are subordinate to pre-existing Colorado River water rights in the Lower Basin, regardless of each state's allocations under the 1928 Boulder Canyon Project Act. Therefore, all post-1968 rights in the Lower Basin, including the CAP's, are effectively junior in priority to California's Colorado River diversions under its 4.4 MAF rights. Post-1968 rights in the Lower Basin are estimated to be 1.8 MAF.
- 1979 Supplemental Decree in Arizona v. California retains IID's present perfected rights to use of the Colorado River water. If water supply shortages occur along the Colorado River, IID's present perfected rights must be satisfied prior to the satisfaction of any nonperfected rights, regardless of state lines and Federal agreements. IID has a present perfected right to 2.6 MAF.

- 2003 QSA/Transfer Agreements slightly modify the guaranteed senior water right of IID within California under the terms of the Seven Party Agreement (senior to CVWD, MWD and San Diego city and county), as follows: IID retains its priority 3(a) right to 3.1 MAF of net consumptive use (including transfers out of the IID service area) at Imperial Dam; however, if IID does not use its full annual apportionment, then MWD can import the balance up to California's 4.4 MAF per year allocation.

- 2007 USBR interim guidelines provide that shortages in Lake Mead storage, and decreasing water levels in the reservoir, will prompt reductions in the deliveries to Arizona and Nevada, but that California deliveries will remain at 4.4 MAF. If California deliveries remain to be 4.4 MAF, then IID deliveries should likewise remain at the agreed right of 3.1 MAF net consumptive use under the terms of the QSA/Transfer Agreements.

Because IID's 2000 Regional UWMP was deemed obsolete and is no longer supported by IID due to the consumptive use limits agreed upon in the QSA, the water supplies available during a normal year are best represented by the post-QSA era (2003 and later). This represents the maximum amount of supply available and is thus the new normal water year. This is the age of limits for IID, where water is not necessarily tightly constrained or scarce, but rather the supply is no longer unlimited due to the agreements with other QSA participants.

7.2.1 Distribution and Priority of Deliveries within IID

See http://www.iid.com/Water/EquitableDistribution for more information.

For the single dry and multiple dry water year assessments, IID's Equitable Distribution Plan (EDP) governs. The EDP was adopted in 2007, along with subsequent regulations, allowing the IID Board to make an annual determination as to Supply/Demand Imbalance (SDI) conditions. On October 26, 2008, IID staff summarized the situation in a board presentation, by noting that a 64% probability existed of demand exceeding supply in the 2009 calendar year, even assuming no overrun were to occur in 2008. Similarly, the Hanemann Brookes Study opined that SDI situations were likely to occur "4 or 5 times out of the next 10 years", and from 2003 through 2008 IID was accounted as overrunning its annual water limit three times. The Equitable Distribution Plan and the Supply/Demand Imbalance are discussed in Item 4 under the single dry and multiple dry year projections.

Future apportionment of municipal, industrial, geothermal, feedlots/dairies, and environmental resources was prescribed in the EDP. The EDP prescribes the amount of water that IID water users receive during periods of supply/demand imbalance (SDI).

The Interim Water Supply Policy, approved on 09/29/09, describes the amount of water available for Non-Agricultural projects and describes the required fees.

Under SDI conditions, industrial and geothermal water users are placed into two categories: (1) For users with existing contracts (as of 2008), water allocated is based on past use, not-to-exceed contracted amount and contract terms; and (2) for contracts after 2008, water allocation is based on anticipated use. The contract terms include not-to-exceed amounts and considerations for water availability. Future water allocation for dairies and feedlots is based on historical practices. Environmental resources use is based on the amount of mitigation area that has been developed.

IID has established an Equitable Distribution Plan and implementing regulations, together referred to as the Equitable Distribution Program, that is designed to provide for the distribution of water in any year when expected demand for water is likely to exceed expected supply. Under the Equitable Distribution Program, when a supply/demand imbalance is declared, IID apportions the estimated supply among the various types of water users as follows:

- Municipal and Commercial Users – Municipal and Commercial water users will receive the first allocation, the base amount of 2006 usage plus current District-wide average use per capita multiplied by the increase in population since 2006.
- Industrial Users – For existing contracts, estimated based on past use, not to exceed contracted amount and contract terms. For new contracts, estimated based on anticipated use, not to exceed contract amount and contract terms, taking into consideration the Interim Water Supply Policy dated 09/29/09.
- Feedlots and Dairies – Estimated based upon past use and consideration of future changes;
- Environmental Resources Water – Estimated based upon the amount reasonably necessary to achieve the purposes of the District's commitments, taking past use into account; and
- Agricultural Lands – Straight Line Apportionment. Subtract the estimated demand for categories a through d above from Available Water Supply, and then divide the remaining supply by the total number of Eligible Agricultural Acres. The amount of water apportioned to acreage that does not comply with Eligible Agricultural Acres will be placed in the District Water Exchange.

As part of the Equitable Distribution Plan, a District Water Exchange is established so that agricultural water users can sell and buy water. This provides flexibility for some agricultural water users to obtain water in addition to their straight line apportionment.

Consumptive use is not the same as delivery. Exhibit B of the Colorado River Water Delivery Agreement dated October 2003 (CRWDA), particularly column 13, summarizes the “IID Net Consumptive Use Amount”, which is indicative of future supplies as measured at Imperial Dam. Agricultural water demands will decrease in an amount equivalent to the water conservation attributable to on-farm efficiency measures (setting aside outside factors such as annual rainfall, differences attributable to the intensity of farming within IID such as acreage in production, double cropping, and market conditions, etc.) and IID system conservation and efficiency measures, so while IID’s total volume in this column is

declining, so too are its agricultural demands. However, as a consequence of reducing the agricultural water demand through increased on-farm and system efficiency, less water is available for years when agricultural demand may be higher than normal, such as in years of low rainfall or due to cropping choices made by Imperial Valley growers. Such intermittent spikes in higher agricultural demand mean less water is available for non-agricultural development.

Similarly, reductions attributable to system conservation efforts and the All-American Canal Lining Project are a result of the implementation of conservation measures, so there is no net decline in the water available for IID's water users as a result of water conservation and transfer projects.

The variability in IID's historical net consumptive use is representative of the historic variability in agricultural deliveries, since IID's MCI deliveries are relatively small and fairly consistent. Historic variations in agricultural water demand actually exceed, but are similar in magnitude, to the 408,000 AF per year of transfers called for in the QSA/Transfer Agreements. For example, agricultural water demands for 1970-2003 varied from a low of 2.555 MAF per year to a high of 3.172 MAF per year – a variation of 617,000 AF. The greatest variation for one year to the next was 326,000 AF, while several 2-year variations are in excess of 300,000 AF. Under the terms of the QSA/Transfer Agreements, IID has a variable demand and a fixed supply which can lead to the supply/ imbalances described above (overruns and under-runs); however, with implementation the Equitable Distribution Plan, these variations are expected to be much less.

7.2.2 Types of Years

Figure 50 shows the summary of volumes available for a given year type.

"**Average Water Year**" means the average year of net consumptive use as compared to the consumptive use right.

"**Single-Dry Water Year**" in this plan signifies a year that the net consumptive use exceeded the consumptive use right.

"**Multiple-Dry Water Years**" in this plan signifies a stretch of three years that the net consumptive use exceeded the consumptive use right.

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Table 7-1 Retail: Basis of Water Year Data			
Year Type	Base Year	Available Supplies if Year Type Repeats	
		Agency may provide volume only, percent only, or both	
		Volume Available	% of Average Supply
Average Year	2015		100%
Single-Dry Year	2015		100%
Multiple-Dry Years 1st Year	2013		100%
Multiple-Dry Years 2nd Year	2014		100%
Multiple-Dry Years 3rd Year	2015		100%
Multiple-Dry Years 4th Year *Optional*			
Multiple-Dry Years 5th Year *Optional*			
Multiple-Dry Years 6th Year *Optional*			
Agency may use multiple versions of Table 7-1 if different water sources have different base years and the supplier chooses to report the base years for each water source separately. If an agency uses multiple versions of Table 7-1, in the "Note" section of each table, state that multiple versions of Table 7-1 are being used and identify the particular water source that is being reported in each table.			
NOTES:			

Figure 50: Table 7-1 Retail: Basis of Water Year Data

7.3 Supply and Demand Assessment

Every urban water supplier shall include, as part of its urban water management plan, an assessment of the reliability of its water service to its customers during normal, dry, and multiple dry water years. This water supply and demand assessment shall compare the total water supply sources available to the water supplier with the total projected water use over the next 20 years, in five-year increments, for a normal water year, a single dry water year, and multiple dry water years. The water service reliability assessment shall be based upon the information compiled pursuant to Section 10631, including available data from state, regional, or local agency population projections within the service area of the urban water supplier (10635(a)).

As shown on **Figure 51**, there is no foreseeable water shortage in the City of Brawley for the next 20 years. The City of Brawley uses surface water supplied by the Colorado River that can supply the City with sufficient water to meet all projected demand. Thus the City is not affected by climatic related supply shortages. California experienced a prolonged drought from 1987 through 1992 and 2007 to 2009 and in 2010 below normal runoff. The Governor declared a statewide drought and proclaimed a state of emergency in nine counties on June 4, 2008 and a statewide emergency due to the drought on February 27, 2009. The droughts, however, did not affect the City's water supply.

Table 7-2 Retail: Normal Year Supply and Demand Comparison					
	2020	**2025**	**2030**	**2035**	**2040 *(Opt)***
Supply totals *(autofill from Table 6-9)*	2,007	2,027	2,047	2,067	0
Demand totals *(autofill from Table 4-3)*	1,431	1,445	1,459	1,474	0
Difference	576	582	588	593	0
NOTES:					

Figure 51: Table 7-2 Retail: Normal Year Supply and Demand Comparison

7.3.1 Supply and Demand Comparison Provisions

The City's projected average use over the next 20 years is shown on **Figure 52** and **Figure 53**. The projections are based on the Urban Water Targets as determined in this document.

The total demand totals through 2035 were calculated using the urban water targets and population growth estimates. The total supply is limited by the amount of water that the water treatment plant can produce and the influent raw water pipeline. The City is currently able to produce 16,800 acre feet of water per year.

The City forecasts no supply shortage at any point in the future. The Equitable Distribution Program will provide for the distribution of water in any year when expected demand for IID water is likely to exceed expected IID supply. Under the Equitable Distribution Program, when a supply/demand imbalance is declared, IID apportions the estimated supply among the various types of water users.

Municipal and Commercial water users will receive the first allocation, the base amount of 2006 usage plus current District wide average use per capita multiplied by the increase in population since 2006.

Table 7-3 Retail: Single Dry Year Supply and Demand Comparison					
	2020	**2025**	**2030**	**2035**	**2040 (Opt)**
Supply totals	2,007	2,027	2,047	2,067	
Demand totals	2,007	2,027	2,047	2,067	
Difference	0	0	0	0	0
NOTES:					

Figure 52: Table 7-3 Retail: Single Dry Year Supply and Demand Comparison

Table 7-4 Retail: Multiple Dry Years Supply and Demand Comparison						
		2020	2025	2030	2035	2040 (Opt)
First year	Supply totals	2,007	2,027	2,047	2,067	
	Demand totals	2,007	2,027	2,047	2,067	
	Difference	0	0	0	0	0
Second year	Supply totals	2,007	2,027	2,047	2,067	
	Demand totals	2,007	2,027	2,047	2,067	
	Difference	0	0	0	0	0
Third year	Supply totals	2,007	2,027	2,047	2,067	
	Demand totals	2,007	2,027	2,047	2,067	
	Difference	0	0	0	0	0
Fourth year *(optional)*	Supply totals	2,007	2,027	2,047	2,067	
	Demand totals	2,007	2,027	2,047	2,067	
	Difference	0	0	0	0	0
Fifth year *(optional)*	Supply totals	2,007	2,027	2,047	2,067	
	Demand totals	2,007	2,027	2,047	2,067	
	Difference	0	0	0	0	0
Sixth year *(optional)*	Supply totals	2,007	2,027	2,047	2,067	
	Demand totals	2,007	2,027	2,047	2,067	
	Difference	0	0	0	0	0
NOTES:						

Figure 53: Table 7-4 Retail: Multiple Dry Years Supply and Demand Comparison

7.4 Regional Supply Reliability

An urban water supplier shall describe in the plan water management tools and options used by that entity that will maximize resources and minimize the need to import water from other regions (10620(f)).

The main factors that can cause water supply shortages for the City are water pollution, earthquakes and long term energy outages at the treatment and pumping facilities.

The Imperial Irrigation District is the only supplier of water to the City, and there is no alternative source water. The water quality of the agricultural drains, New River and Alamo River are high in total dissolved solids and other contaminants and are as such unusable as a potable or irrigation water source.

The City receives water from the All-American and Central Main Canals. If either the All-American Canal or Central Main Canal were shut down, water could not be delivered to the treatment plant. The shutdown could be for scheduled maintenance or as a result of an emergency, such as an earthquake. In October 1979, an earthquake caused levee and slope failures along the All-American Canal east of El Centro, severely limiting water flow. This is the only time during the last 25 years that the All-American Canal was shut down.

Maintenance is scheduled to be performed monthly on the South Date Canal and Dahlia Lateral. Typically, however, the South Date Canal and the Dahlia Lateral are shut down about three times annually, usually lasting approximately three days each time. The Central Main Canal and the All-American Canal are seldom shut down. To perform maintenance on the Central Main Canal, the water level is lowered but service is not completely interrupted. According to plant operators, this is done every five to ten years.

In the event that there is a water shortage in the Lower Colorado River Basin, the Imperial Irrigation District/San Diego County Water Authority water transfer agreement states that both agencies will share, on a pro-rata basis, any reductions in water to Imperial Irrigation District should a shortage declaration by the Secretary of the Interior for the Lower Colorado River Basin affect the Imperial Irrigation District's water conservation and transfer programs. When the amount of water in usable storage in Lake Mead is less than 15 million acre-feet and the unregulated inflow into Lake Powell is forecasted to be less than 8.8 million acre-feet, the Imperial Irrigation District and the San Diego County Water Authority have agreed to meet and confer to discuss a supplemental water transfer agreement in anticipation of the shortage.

Should operating conditions on the Colorado River indicate Imperial Irrigation District may be impacted by reductions in water deliveries; the Imperial Irrigation District will notify all of its water users by mail and will conduct an educational outreach program in conjunction with the local media and municipal water systems. The notice will request all water suppliers, and in particular residential, industrial, and commercial water users, to conserve water on a voluntary basis. Urban water suppliers will be

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responsible for notifying their customers and implementing their own voluntary water conservation measures and programs.

Urban water supply reductions in the Imperial Unit are not likely to occur during the next twenty years. Urban water supply shortage stage one is voluntary, has cut back conditions of less than 15 percent, and is estimated to provide up to 79 percent of the reduction goal for urban water suppliers. Urban water supply shortage stage two is voluntary, has cut back conditions of 15 percent to less than 25 percent, and is estimated to provide 7 to 12 percent of the reduction goal for urban water suppliers.

Urban water supply shortage stage 3 is mandatory, has cut back conditions of 25 percent to less than 35 percent, and is estimated to provide the remainder of any reduction goals for urban water suppliers.

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Chapter 8 – Water Shortage Contingency Planning

8.1 Stages of Action

Stages of action to be undertaken by the urban water supplier in response to water supply shortages, including up to a 50 percent reduction in water supply, and an outline of specific water supply conditions which are applicable to each stage (10632(a)(1)).

Stages of water shortage contingency plan is summarized on **Figure 54** below.

Table 8-1 Retail: Stages of Water Shortage Contingency Plan		
Stage	**Complete Both**	
	Percent Supply Reduction[1] *Numerical value as a percent*	**Water Supply Condition** (*Narrative description*)
Add additional rows as needed		
SECOND	32%	Colorado River source
[1] One stage in the Water Shortage Contingency Plan must address a water shortage of 50%.		
Current mandated % from state drought requirements		

Figure 54: Table 8-1 Retail: Stages of Water Shortage Contingency Plan

If the water supplies are reduced by 50 percent for a single year, the City will make an allotment on a per capita basis per connection and customer type.

8.2 Prohibitions on End Uses

Additional, mandatory prohibitions against specific water use practices during water shortages, including, but not limited to, prohibiting the use of potable water for street cleaning (10632(a)(4)).

The City has adopted a resolution for Restrictions during a Declared Water-Shortage Emergency. The following restrictions shall be effective during a declared Water-Shortage Emergency:

- There shall be no water used for irrigation or landscaping purposes.
- There shall be no private or commercial car washing.
- No restaurant, hotel, cafe, cafeteria or other public place where food is sold, served or offered for sale, shall serve drinking water to any customer unless requested.

- Use of potable water for construction, compaction, dust control, street or parking lot sweeping, building wash down shall be prohibited.
- Use of potable water for sewer system maintenance or fire protection training shall be prohibited without prior approval by the Mayor;
- Use of potable water for any purpose in excess of the amount allocated shall be prohibited.
- Other restrictions and prohibitions may become necessary during a declared Water Shortage Emergency, to safeguard the adequacy of the water supply for domestic, sanitation, fire protection, and environmental requirements.

Consumption reduction methods in the most restrictive stages. Each urban water supplier may use any type of consumption reduction methods in its water shortage contingency analysis that would reduce water use, are appropriate for its area, and have the ability to achieve a water use reduction consistent with up to a 50 percent reduction in water supply (10632(a)(5)).

Restrictions and prohibitions on end uses for each stages of water shortages are summarized below.

Table 8-2 Retail Only: Restrictions and Prohibitions on End Uses			
Stage	**Restrictions and Prohibitions on End Users** *Drop down list* *These are the only categories that will be accepted by the WUEdata online submittal tool*	**Additional Explanation or Reference *(optional)***	**Penalty, Charge, or Other Enforcement?** *Drop Down List*
Add additional rows as needed			
SECOND	Landscape - Restrict or prohibit runoff from landscape irrigation		Yes
SECOND	Water Features - Restrict water use for decorative water features, such as fountains		Yes
SECOND	Other water feature or swimming pool restriction		Yes
SECOND	Other - Customers must repair leaks, breaks, and malfunctions in a timely manner		Yes
SECOND	Other - Require automatic shut of hoses		Yes
SECOND	Other - Prohibit use of potable water for construction and dust control		Yes
SECOND	Other - Prohibit use of potable water for washing hard surfaces		Yes
SECOND	Other - Prohibit vehicle washing except at facilities using recycled or recirculating water		Yes
NOTES:			

Figure 55: Table 8-2 Retail Only: Restrictions and Prohibitions on End Uses

8.2.4 Defining Water Features

Commencing with the urban water management plan update due July 1, 2016, for purposes of developing the water shortage contingency analysis pursuant to subdivision (a), the urban water supplier shall analyze and define water features that are artificially supplied with water, including ponds, lakes, waterfalls, and fountains, separately from swimming pools and spas, as defined in subdivision (a) of Section 115921 of the Health and Safety Code (10632(b)).

8.3 Penalties, Charges, Other Enforcement of Prohibitions

Penalties or charges for excessive use, where applicable (10632(a)(6)).

Any customer violating the regulations and restrictions on water use set forth in the "No Waste" Ordinance shall receive a written warning for the first such violation. Upon a second violation, the customer shall receive a written warning and the City may cause a flow-restrictor to be installed in the service. If a flow-restrictor is placed, the violator shall pay the cost of the installation and removal. Any willful violation occurring subsequent to the issuance of the second written warning shall constitute a misdemeanor and may be referred to the Office of the City Attorney for prosecution. If water service is disconnected, it shall be restored only upon payment of the turn-on charge fixed by the City Council.

There shall be rate increases starting with a 25% rate increase at Stage II; 50% at Stage III, and a 100% increase at Stage IV.

8.4 Consumption Reduction Methods

Consumption reduction methods in the most restrictive stages. Each urban water supplier may use any type of consumption reduction methods in its water shortage contingency analysis that would reduce water use, are appropriate for its area, and have the ability to achieve a water use reduction consistent with up to a 50 percent reduction in water supply (10632(a)(5)).

8.4.1 Categories of Consumption Reduction Methods

Figure 56 shows the summary water shortage contingency plan to reduce consumption at different stages of water shortage. **Figure 57** shows the minimum available water supply for the next 3 years.

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Table 8-3 Retail Only: Stages of Water Shortage Contingency Plan - Consumption Reduction Methods		
Stage	**Consumption Reduction Methods by Water Supplier** *Drop down list* *These are the only categories that will be accepted by the WUEdata online submittal tool*	**Additional Explanation or Reference** ***(optional)***
Add additional rows as needed		
SECOND	Expand Public Information Campaign	website
SECOND	Improve Customer Billing	electronic
SECOND	Increase Frequency of Meter Reading	once a month
SECOND	Offer Water Use Surveys	
SECOND	Provide Rebates on Plumbing Fixtures and Devices	
SECOND	Provide Rebates for Landscape Irrigation Efficiency	
SECOND	Provide Rebates for Turf Replacement	
SECOND	Decrease Line Flushing	
SECOND	Reduce System Water Loss	
SECOND	Increase Water Waste Patrols	
SECOND	Moratorium or Net Zero Demand Increase on New Connections	
SECOND	Implement or Modify Drought Rate Structure or Surcharge	
	Other	
NOTES:		

Figure 56: Table 8-3 Retail Only

Table 8-4 Retail: Minimum Supply Next Three Years			
	2016	2017	2018
Available Water Supply	7,044	7,044	7,044
NOTES: Supply from IID is only limited by piping and delivery structures, not entire available supply is required by the City.			

Figure 57: Table 8-4 Retail: Minimum Supply Next Three Years

8.5 Determining Water Shortage Reductions

A mechanism for determining actual reductions in water use pursuant to the urban water shortage contingency analysis 10632(a)(9).

Under normal water supply conditions, potable water production figures are recorded daily. Totals are reported weekly to the Water Treatment Facility Supervisor. Totals are reported monthly to the Water Department Manager and incorporated into the water supply report. During a Stage I or Stage II water shortage, daily production figures are reported to the Supervisor. The Supervisor compares the weekly production to the target weekly production to verify that the reduction goal is being met. Weekly reports are forwarded to the Water Department Manager and the Water Shortage Response Team. Monthly reports are sent to the City Council. If reduction goals are not met, the Manager will notify the City Council so that corrective action can be taken.

During a Stage III or Stage IV water shortage, the procedure listed above will be followed, with the addition of a daily production report to the Manager. During emergency shortages, production figures are reported to the Supervisor hourly and to the Manager and the Water Shortage Response Team daily. Daily reports will also be provided to the City Council and the Imperial County Office of Emergency Services.

All surplus revenues that the City collects are currently used to fund the Rate Stabilization Fund, conservation, recycling, and other capital improvements. The City estimated projected ranges of water sales by shortage stage to best understand the impact each level of shortage will have on projected revenues and expenditures by each shortage stage.

8.6 Revenue and Expenditure Impacts

An analysis of the impacts of each of the actions and conditions described in subdivisions (1) to (6), inclusive, on the revenues and expenditures of the urban water supplier, and proposed measures to overcome those impacts, such as the development of reserves and rate adjustments (10632(a)(7)).

8.6.1 Mechanism to Determine Reductions in Water Use

Under normal water supply conditions, potable water production figures are recorded daily. Totals are reported weekly to the Water Treatment Facility Supervisor. Totals are reported monthly to the Water Department Manager and incorporated into the water supply report.

During a Stage I or Stage II water shortage, daily production figures are reported to the Supervisor. The Supervisor compares the weekly production to the target weekly production to verify that the reduction goal is being met. Weekly reports are forwarded to the Water Department Manager and the Water Shortage Response Team. Monthly reports are sent to the City Council. If reduction goals are not met, the Manager will notify the City Council so that corrective action can be taken.

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During a Stage III or Stage IV water shortage, the procedure listed above will be followed, with the addition of a daily production report to the Manager. During emergency shortages, production figures are reported to the Supervisor hourly and to the Manager and the Water Shortage Response Team daily. Daily reports will also be provided to the City Council and the Imperial County Office of Emergency Services.

All surplus revenues that the City collects are currently used to fund the Rate Stabilization Fund, conservation, recycling, and other capital improvements. The City estimated projected ranges of water sales by shortage stage to best understand the impact each level of shortage will have on projected revenues and expenditures by each shortage stage.

8.7 Resolution or Ordinance

A draft water shortage contingency resolution or ordinance (10632(a)(8)).

A draft water shortage contingency resolution follows. This will be adopted at the public hearing for the UWMP.

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Draft Resolution to Declare a Water Shortage Emergency

CITY OF BRAWLEY
IMPERIAL COUNTY,
CALIFORNIA
Date

The City Council of Brawley does hereby resolve as follows:

PURSUANT to California Water Code Section 350 et seq., the Council has conducted duly noticed public hearings to establish the criteria under which a water shortage emergency may be declared.

WHEREAS, the Council finds, determines and declares as follows:

(a) The City is the water purveyor for the property owners and inhabitants of Brawley;

(b) The demand for water service is not expected to lessen.

(c) When the potable water supply available to the City falls at or below the Stage II triggering levels described in the most current Urban Water Management Plan, the City will declare a water shortage emergency. The water supply would not be adequate to meet the ordinary demands and requirements of water consumers and there may be insufficient water for human consumption, sanitation, fire protection, and environmental requirements. This condition is likely to exist until groundwater contamination is remedied and/or water system damage resulting from a disaster is repaired and normal water service is restored.

NOW, THEREFORE, BE IT RESOLVED that the City Council of Brawley hereby directs the Mayor to find, determine, declare and conclude that a water shortage emergency condition exists that threatens the adequacy of water supply, until the City's water supply is deemed adequate and potable. After the declaration of a water shortage emergency, the Mayor is directed to determine the appropriate Rationing Stage and implement the City's Water Shortage Emergency Response.

FURTHERMORE, the Council shall periodically conduct proceedings to determine additional restrictions and regulations which may be necessary to safeguard the adequacy and quality of the water supply for domestic, sanitation, fire protection, and environmental requirements.

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Moratorium on New Connections during a Water Shortage

CITY OF BRAWLEY
IMPERIAL COUNTY,
CALIFORNIA
Date
The City Council of Brawley does hereby resolve as follows:

The Municipal Code of the City of Brawley is hereby amended to read as follows:

MORATORIUM ON SERVICE COMMITMENTS AND CONNECTIONS

1. When the City declares a water shortage emergency, the following regulations shall become effective immediately and shall continue in full force and effect to prohibit the following while it remains in full force and effect:

    a. The City shall not issue oral or written commitments to provide new or expanded water service, including will-serve letters.
    b. The City shall not sell meters for water service connections, despite the prior issuance of will-serve letters or other oral or written service commitments, unless building permits have been issued.
    c. The City shall not provide new or expanded water service connections, despite the prior issuance of will-serve letters or other oral or written service commitments and meters, unless building permits have been issued.
    d. The City shall not provide water for use on any new plantings installed after the declaration of a Water Shortage Emergency.
    e. The City shall not annex territory located outside the City's service boundary.

2. The following uses are exempt from the moratorium and upon application to the City shall receive necessary water service commitments and connections to receive water from the City:

    a. Uses, including but not limited to, commercial, industrial, single and multifamily residential, for which a building permit has been issued by the City on or before the declaration of a Water Shortage Emergency.
    b. Uses, including but not limited to, commercial, industrial, single and multifamily residential, for which a retail meter had been purchased from the City before the declaration of a Water Shortage Emergency, as evidenced by a written receipt and for which a building permit has been issued and remains in full force and effect.
    c. Publicly owned and operated facilities, including but not limited to schools, fire stations, police stations, and hospitals and other facilities as necessary to protect the public health, safety and welfare.

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8.8 Catastrophic Supply Interruption

Actions to be undertaken by the urban water supplier to prepare for, and implement during, a catastrophic interruption of water supplies including, but not limited to, a regional power outage, an earthquake, or other disaster (10632(a)(3)).

Upon a catastrophic water supply reduction, mandatory provisions to reduce individual urban consumer water use will be placed into effect. During a shortage the City would increase media attention to the water supply situation and would step up public water education programs, encourage property owners to apply for landscape and interior water use surveys and continue to advertise the importance of customers installing efficient plumbing fixtures.

During declared shortages, or when a shortage declaration appears imminent, the City Manager activates a City water shortage response team. The team includes: water, fire, planning, health, emergency services, public affairs, parks and recreation, and the Mayor's Office. During a declared water shortage, the City will accept applications for new building permits but will not issue permits until the shortage declaration is rescinded. An appeal process is available and ends at the City Council.

In the event of extended regional power outages, the City will use standby diesel generators that will power critical functions at the water treatment plant. The fuel would be brought in every two days. In this way the residents of Imperial would not lose supply of potable water.

In the event of an earthquake that damages critical components of the water treatment plant, the City will divert irrigation water into the potable water distribution system. Under this scenario non-potable water would be delivered to City customers and the water would have to be boiled by each customer prior to potable water use. The water could be delivered by diesel powered pumps to the City's distribution system. If the All-American or Central Main Canal is damaged and unable to transmit water, the City will declare a water shortage emergency and will implement the appropriate conservation measures. The City will have approximately ten days of raw water storage to rely on from the time of the emergency with these conservation measures in place.

8.8.1 Imperial Irrigation District Emergency Preparedness Plan

During or immediately after any water supply emergency, IID staff implements the Emergency Preparedness Plan. The Emergency Preparedness Plan includes required actions and procedures by IID staff to respond to events that impair water operation of canals, laterals, drains, dams, and other facilities. These responses are not normal operation and maintenance activities. Generally, any occurrence that requires an immediate response is classified as an extreme event or emergency.

The Emergency Preparedness Plan defines the role each responsible employee will play during an emergency. Water Department staff conducts emergency and/or disaster response planning in the Water Control Center. Coordination of staffs with other departments will take place in the General Manager's conference room. All- American Canal River Division staff planning will be centered in the Imperial Dam Control House. Other staffs meet and coordinate actions at designated areas.

Established actions and procedures exist for extreme events and emergencies that endanger operation of the water system. Possible emergencies/extreme events that endanger operation of the water system could include: earthquakes, storms, rain, run- off from desert washes, flooding, facility or structure damage, power outages, fire, vehicles in canals, equipment theft/vandalism, or other disaster. The Imperial Irrigation District's water delivery and drainage systems do not totally shut down during an emergency.

The Imperial Irrigation District has conducted Emergency Preparedness Exercises in the past. Emergency preparedness exercises will be updated with the development of new emergency preparedness exercises. Water Department staffs trained and participated with the U. S. Department of the Interior Bureau of Reclamation's Tabletop Exercise for emergency preparedness.

The cities in the Imperial Unit have a ten-day storage holding capacity requirement. The Imperial County Office of Emergency Services requires this storage holding capacity for cities (Imperial Irrigation District, 1998, p.22).

IID is considered a special district in the eyes of the state and the federal government. A special district has to meet the same requirements as a local city pertaining to emergency preparedness and emergency management. As such, IID is required to go through the appropriate channels regarding mutual aid.

In the event of a natural and or man-made disaster, IID would open its Emergency Operations Center located at headquarters in Imperial, California. IID would then notify the Operational Area, which is the Imperial County Office of Emergency Services located in Heber at the Imperial County Fire Department Station # 2. If the event called for mutual aid IID, the EOC would request assistance from the OA. If the OA was unable to fulfill this request it would go to the next highest level, which would be the Regional Emergency Operations Center, located in Los Alamitos.

In the event the REOC was unable to fill the request it would go to the State Operations Center located in Sacramento. The SOC would fill the request or ask for federal assistance from the Federal Emergency Management Agency a subsection of the Federal Department of Homeland Security.

8.8.2 Water Shortage Stages and Triggering Mechanisms

As the water purveyor, the City of Brawley must provide the minimum health and safety water needs of the community at all times. The water shortage response is designed to provide a minimum of 50% of normal supply during a severe or extended water shortage. The rationing program triggering levels shown below were established to ensure that this goal is met.

Rationing stages may be triggered by groundwater contamination, power failure, earthquake or other natural disaster.

The City's only potable water source is the Colorado River. Specific criteria for triggering the City's rationing stages are shown on the **Figure 58** below.

Water Shortage Stages and Triggering Mechanisms				
Percent Reduction of Supply	**Stage I Up to 15%**	**Stage II 15 - 25%**	**Stage III 25 - 35%**	**Stage IV 35 - 50% >**
Water Supply Condition				
Supply	Projected supply insufficient to provide 80% of normal demand, Or	Projected supply insufficient to provide 75% of normal demand, Or	Projected supply insufficient to provide 65% of normal demand, Or	Projected supply insufficient to provide 50% of normal demand, Or
Water Quality	Contamination of 10% of water supply (exceeds primary drinking water standards)	Contamination of 20% of water supply (exceeds primary drinking water standards)	Contamination of 30% of water supply (exceeds primary drinking water standards)	Contamination of 40% of water supply (exceeds primary drinking water standards)

Figure 58: Water Shortage Stages and Triggering Mechanisms

8.8.2.1 Water Allotment Methods

The City has established the following allocation method for each customer type. See the city ordinance for sample water shortage rationing allocation method.

- Single Family Hybrid of Per-capita and Percentage Reduction
- Multifamily Hybrid of Per-capita and Percentage Reduction
- Commercial Percentage Reduction
- Industrial Percentage Reduction
- Gov't/Institutional Percentage Reduction
- Recreational Percentage Reduction - vary by efficiency

8.8.2.2 Water Shortage Rationing Allocation Method

Single-family account allocations may be determined as follows: assuming 4 persons or less per home, an account would receive 11 HCF per month (68 gpcd) plus 55% of their historic use, not to exceed an upper limit. The upper limit on additional water may be 30 HCF per year (i.e., 132 HCF + 50% historic ≤ 162 HCF a year). Appeals would be available for additional people. For each additional person at a home the allotment is increased by 4 HCF per billing period (49 gcd).

Multi-residential account allocations may be determined as follows: assuming 3 persons or less per unit, accounts receive 6 HCF per unit per month (49 gcd), plus 40% of their historic use, not to exceed an upper limit. The upper limit on additional water may be 10 HCF per year per unit (i.e., 72 HCF + 40% historic ≤ 82 HCF a year). Appeals would be available for additional people. For each additional person, the allotment increases by 4 HCF per billing period (49 gcd).

Increased allocations for residential accounts would be limited to the following:

- Greater number of residents than assumed by plan.
- Medical conditions requiring additional water.

Commercial, Industrial and Institutional would receive a percentage reduction from historical use. The historical use period used to determine the baseline amount may vary based on specific factors. Appeals would be available for increased business, census or other factors. New Customers Per-capita (no allocation for new landscaping during a water shortage.)

City Drought Emergency Ordinance Sec 19-24-3 dictates the water allocated to each customer type by priority and rationing stage during a declared water shortage.

Individual customer allotments are based on a five-year period. This gives the City a more accurate view of the usual water needs of each customer and provides additional flexibility in determining allotments and reviewing appeals. However, no allotment may be greater than the amount used in the most recent year of the five- year base period.

The Water Department Manager shall classify each customer and calculate each customer's allotment according to the Sample Water Rationing Allocation Method. The allotment shall reflect seasonal patterns. Each customer shall be notified of their classification and allotment by mail before the effective date of the Water Shortage Emergency. New customers will be notified at the time the application for service is made. In a disaster, prior notice of allotment may not be possible; notice will be provided by other means. Any customer may appeal the Water Department Manager's classification on the basis of use or the allotment on the basis of incorrect calculation.

8.8.2.3 Rationing Stages and Reduction Goals

The City has developed a four stage rationing plan to invoke during declared water shortages. The rationing plan includes voluntary and mandatory rationing, depending on the causes, severity, and anticipated duration of the water supply shortage.

Water Rationing Stages and Reduction Goals			
Shortage Condition	Stage	Reduction Goal	Type of Rationing Program
Up to 15%	I	15%	Voluntary
15 – 25%	II	25%	Mandatory
25 - 35%	III	35%	Mandatory
35 - 50%	IV	50% or >	Mandatory

Figure 59: Water Rationing Stages and Reduction Goals

8.8.2.4 Mandatory Prohibitions on Water Use

The Brawley "No Waste" Ordinance prohibits certain types of water uses during water shortage emergencies. The following are the stages at which water use prohibitions become active:

A. Priority by Use

Priorities for use of available potable water during shortages were based on input from the City Emergency Response Team, citizen groups, and legal requirements set forth in the California Water Code, Sections 350-358. Water allocations are established for all customers according to the following ranking system:

- Minimum health and safety allocations for interior residential needs (includes single family, multi-family, hospitals and convalescent facilities, retirement and mobile home communities, and student housing, and firefighting and public safety)
- Commercial, industrial, institutional/governmental operations (where water is used for manufacturing and for minimum health and safety allocations for employees and visitors), to maintain jobs and economic base of the community (not for landscape uses)
- Existing landscaping
- New customers, proposed projects without permits when shortage declared.

B. Health and Safety Requirements

Based on commonly accepted estimates of interior residential water use in the United States, **Figure 60** below indicates per capita health and safety water requirements. In Stage I shortages, customers may adjust either interior or outdoor water use (or both), in order to meet the voluntary water reduction goal.

However, under Stage II, Stage III and Stage IV mandatory rationing programs, the City has established a health and safety allotment of 50 gpcd (which translates to 24 HCF per person per year), because that amount of water is sufficient for essential interior water with no habit or plumbing fixture changes. If customers wish to change water use habits or plumbing fixtures, 50 gpcd is sufficient to provide for limited non- essential (i.e. outdoor) uses.

Stage IV mandatory rationing, which is likely to be declared only as the result of a prolonged water shortage or as a result of a disaster, would require that customers make changes in their interior water use habits (for instance, not flushing toilets unless “necessary” or taking less frequent showers).

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Per Capita Health and Safety Water Quantity Calculations						
	Non-Conserving		Habit Changes 1		Conserving Fixtures 2	
Toilets	4 flushes x 3.5 gpf	14	3 flush x 3.5 gpf	10.5	4 flush x 1.6 gpf	6.4
Shower	5 min x 3.0 gpm	15	4 min x 3.0 gpm	12	5 min x 2.0	10
Washer	12.0 gpcd	12	11.0 gpcd	11	10.0 gpcd	10
Kitchen	4 gpcd	4	4 gpcd	3	4 gpcd	3
other	4 gpcd	4	4 gpcd	4	4 gpcd	4
Gallons per person per day		49		40.5		33.4
CCF per person per year		24		20		16

1 Reduced shower use results from shorter length of shower and reduced flow. Reduced washer use results from fuller loads.

2 Fixtures include ULF 1.6 gpf toilets, 2.0 gpm showerheads, faucet aerators and efficient clothes washers.

Figure 60: Per Capita Health and Safety Water Quantity Calculations

8.9 Minimum Supply Next Three Years

An estimate of the minimum water supply available during each of the next three water years based on the driest three-year historic sequence for the agency's water supply (10632(a)(2)).

Figure 57 (repeated below) shows the minimum supply for the next three year. The supply is limited by piping and delivery structure. The minimum supply is estimated to be 7,044 MG in 2016. Estimates for 2017 and 2018 are same. The water supply available to the city is determined by the water treatment plant capacity and raw water influent piping, which is currently 5,474 MG per year. Multiple dry water years do not affect the City's water supply.

Table 8-4 Retail: Minimum Supply Next Three Years			
	2016	2017	2018
Available Water Supply	7,044	7,044	7,044
limited by piping and delivery structures			

Figure 57: Table 8-4 Retail: Minimum Supply Next Three Years

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Chapter 9 – Demand Management Measures

9.1 Demand Management Measures for Wholesale Agencies

The City of Brawley is not a wholesale agency.

9.2 Demand Management Measures for Retail Agencies

(A)… The narrative shall describe the water demand management measure that the supplier plans to implement to achieve its water use targets pursuant to Section 10608.20. (B) The narrative pursuant to this paragraph shall include descriptions of the following water demand management measures: (i) Water waste prevention ordinances. (ii) Metering. (iii) Conservation pricing. (iv) Public education and outreach. (v) Programs to assess and manage distribution system real loss. (vi) Water conservation program coordination and staffing support. (vii) Other demand management measures that have a significant impact on water use as measured in gallons per capita per day, including innovative measures, if implemented (10631(f)(1)(A&B))..

The City's demand management measures shall be discuss here and in following paragraphs.

9.2.1 Water waste prevention ordinances

9.2.1.1 Water Use Reduction Plan

The City has enacted the Model Water Efficient Landscape Ordinance for the requirements found in state legislation under Assembly Bill 1881 that apply to commercial, industrial and tenant occupied residential property that require landscaping greater than 2,500 square feet and homeowner landscaping greater than 5,000 square feet. While for the most part water conservation guidelines only apply to large landscaping projects, the City encourages its application to smaller scale projects in order to conserve water.

The following policies are part of the City's General Plan, in the Resource Management Element:

Water Conservation

RME Objective 4.1: Promote city-wide water conservation to reduce the projected demand for water service and associated treatment.

RME Policy 4.1.1: Protect groundwater resources from depletion and sources of pollution. RME Policy 4.1.2: Conserve imported water by requiring water conservation techniques and water conserving appliances, in rehabilitated and new projects.

RME Policy 4.1.3: Require all new developments to install low-flow showers and toilets. Consider implementing a low-flow replacement program for showers and toilets in existing facilities.

RME Policy 4.1.4: Encourage the replacement of existing water fixtures, toilets, and landscaping with water-conserving counterparts.

RME Policy 4.1.5: Encourage the Imperial Irrigation District to promote water conservation practices and safety in agricultural activities.

RME Policy 4.1.6: Implement programs to educate adults and children about the importance of water conservation and methods to reduce water use.

RME Policy 4.1.7: Support the development and usage of waste water recycling production and use wherever possible and economically feasible.

RME Policy 4.1.8: Require water meters on all new construction and development and consider implementing a program to install meters on all existing water services.
The assessment of the current and proposed measures to help achieve the water use reduction requirements are analyzed and discussed in the Demand Management Measures Section.

Water conservation in both urban development and agricultural activity will be promoted by the City. New development and rehabilitation projects will be required to make maximum use of water conservation techniques and the use of drought resistant plant species in ornamental landscaping will be encouraged. In addition, the City will consider using reclaimed water to replace the use of imported water for landscape irrigation; work with the County, Imperial Irrigation District, and local farmers to develop and implement conservation strategies for agricultural production; and support the Imperial Irrigation District in its efforts to maintain local water supplies and underground or cover irrigation canals for safety and conservation purposes.

The following tables lists the demand management measures (DMM) which aid City in maintaining the water use reductions per the Water Conservation Bill of 2009 requirements, written descriptions of each DMM follows the table.

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Implementation of the Water Conservation Bill of 2009 Requirements					
Demand management measures and California Urban Water Conservation Council BMP names					
CUWCC BMP Organization and Names (2009 MOU)				UWMP DMMs	
Type	Category	BMP #	BMP name	DMM #	DMM name
Foundational	Operations Practices	1.1.1	Conservation Coordinator	12	Water conservation
		1.1.2	Water Waste Prevention	13	Water waste prohibition
		1.1.3	Wholesale Agency Assistance Programs	10	Wholesale agency programs
		1.2	Water Loss Control	3	System water audits, leak detection, and repair
		1.3	Metering with Commodity Rates for All New Connections and Retrofit of Existing	4	Metering with commodity rates for all new connections and retrofit of existing connections
		1.4	Retail Conservation Pricing	11	Conservation pricing
	Education Programs	2.1	Public Information Programs	7	Public information
		2.2	School Education Programs	8	School education programs
Programmatic	Residential	3.1	Residential assistance program	1	Water survey programs for single-family residential and multifamily residential customers[1]
				2	Residential plumbing retrofit
		3.2	Landscape water survey	1	Water survey programs for single-family residential and multifamily residential customers[1]
		3.3	High-Efficiency Clothes Washing Machine Financial Incentive Programs	6	High-efficiency washing machine rebate programs
		3.4	WaterSense Specification (WSS) toilets	14	Residential ultra-low-flush toilet replacement programs
	Commercial, Industrial, and Institutional	4	Commercial, Industrial, and Institutional	9	Conservation programs for commercial, industrial, and institutional accounts
	Landscape	5	Landscape	5	Large landscape conservation programs and incentives

[1] Components of DMM 1 (Water survey programs for single-family residential and multifamily residential customers) applies to both BMP 3.1 (Residential assistance program) and BMP 3.2 (Landscape water survey)

Figure 61: Implementation of the Water Conservation Bill of 2009 Requirements

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DMM 1 – Residential Surveys

A Residential Assistance Checklist will be developed and started by the end of Fiscal Year 2012 to customers who report high water bills. It will include on-site interior and exterior detection, a landscape water survey, and a provision of low flow showerheads, aerators and information as appropriate. The City shall advise customers whenever it appears possible that leaks exist on the customer's side of the meter.

The City will provide site-specific leak detection assistance that may include, but is not limited to, the following: a water conservation survey, water efficiency suggestions, and/or inspection. The City will recommend showerheads and faucet-aerators that meet the current water efficiency standard as stipulated in the WaterSense Specifications (WSS) as needed.

The City will perform site-specific landscape water surveys that will include, but are not limited to, the following: check irrigation system and timers for maintenance and repairs needed; estimate or measure landscaped area; develop customer irrigation schedule based on precipitation rate, local climate, irrigation system performance, and landscape conditions; review the scheduling with customer; provide information packet to customer; and provide customer with evaluation results and water savings recommendations.

The City will provide reports, disaggregated by single-family and multi-family units, identifying: the number of residential assistance/leak detection survey visits completed; number of WSS showerheads distributed.

DMM 2 – Residential Plumbing Retrofit

California Civil Code Section 1101.4 and 1101.5 requires that after January 1, 2014, all noncompliant plumbing fixtures in any single-family, multi-family residential real property and any commercial residential real property be replaced with water-conserving plumbing fixtures when a permit is taken out for building additions, alterations. Also, State law requires that after January 1, 2017, noncompliant plumbing fixtures in any single-family residential property be replaced with water-conserving plumbing fixtures, and shall be verified at the time of sale or transfer.

The City's currently implements this plan by performing physical inspections by building department personnel during the building permit issuance process. During inspections non-compliant plumbing is identified and noted for replacement prior to permit approval. After replacement, a follow-up inspection is performed. This implementation will continue for the foreseeable future.

DMM 3 – System Water Audits, Leak Detection and Repair

The City will quantify the current volume of apparent and real water loss. The City will complete the standard water audit and balance using the AWWA Water Loss software to determine their current volume of apparent and real water loss and the cost impact of these losses on utility operations at no less than annual intervals.

The City may use up to four years to develop a validated data set for all entries of their water audit and balance. Data validation shall follow the methods suggested by the AWWA Software to improve the accuracy of the quantities for real and apparent losses.

The City will use the AWWA's 3rd Edition M36 Publication, *Water Audits and Loss Control Programs* (2009) for specific methods to reduce system losses.

The City will seek training in the AWWA water audit method and component analysis process (offered by CUWCC or AWWA) during the first four years of implementation, and complete a component analysis of real losses by the end of the fourth year, and update this analysis no less frequently than every four years.

The City will repair all reported leaks and breaks to the extent cost effective. By the end of the second year, The City shall establish and maintain a record- keeping system for the repair of reported leaks, including time of report, leak location, type of leaking pipe segment or fitting, and leak running time from report to repair. By the end of the fourth year, The City shall include estimated leakage volume from report to repair, and cost of repair (including pavement restoration costs and paid-out damage claims, if any).

DMM 4 – Metering with Commodity Rates for New Connections and Retrofit of Existing Customers

A water meter is defined as a devise that measures the actual volume of water delivered to an account in conformance with the guidelines of the American Water Works Association. Implementation shall consist of at least the following actions:

The City ordinances currently require meters for all service connections. The Resource Management Element (RME) Policy 4.1.8 requires water meters on all new construction and development.

Meters older than 10 years are inspected and replaced if necessary. The City reads the meters and bills customers based on volume of water used every month. The customers are billed based on the volume of water used, the size of the meter and the type of connection. The City keeps records of the historical usage, meter size and type of connection. The City recently installed residential meters throughout the city. All residential accounts now have meters; there are some existing commercial accounts, parks and public spaces that are unmetered. The City plans to install meters for these accounts within three years.

The City will keep records of when each meter was installed, repaired, tested or replaced. The meter retrofits and volumetric rates are expected to result in a 20% reduction in demand for retrofitted accounts.

DMM 5 – Large Landscape Conservation Programs and Incentives

Water demand during the summer months is much higher than during the winter. Much of the summer demand placed on the City's water distribution system is for irrigation. Water conservation in both urban development and agricultural activity will be promoted by the City. New development and rehabilitation projects will be required to make maximum use of water conservation techniques and the use of drought resistant plant species in ornamental landscaping will be encouraged. In addition, the City will consider using reclaimed water to replace the use of imported water for landscape irrigation.

Landscaping located in commercial, industrial, and multifamily residential developments shall include a water efficient irrigation system in accordance with specifications provided by the department of public works. Prior to the issuance of a building permit, a landscape documentation package is submitted by the developer for review and approval that includes a water conservation concept statement, calculation of the maximum applied water and estimated water use, irrigation design plan and landscape irrigation audit schedule. The City will provide a statement designating those portions of the landscape to be used for such purposes and specifying water needed for the water use budget, which may not exceed 100% of ETo on an annual basis.

The City shall preserve water use records and budgets for customers with dedicated landscape irrigation accounts for at least four years.

- Number of dedicated irrigation meter accounts.
- Number of dedicated irrigation meter accounts with water budgets.
- Aggregate water use for dedicated non-recreational landscape accounts with budgets.
- Aggregate acreage assigned water budgets and average ET for dedicated non-recreational landscape accounts with budgets.
- Number of Accounts 20% over-budget.
- Number of accounts 20% over-budget offered technical assistance.
- Number of accounts 20% over-budget accepting technical assistance
- Aggregate acreage of recreational areas assigned water budgets and average ET for dedicated recreational landscape accounts with budgets.

The California Irrigation Management Information System (CIMIS) provides real time weather information to assist in irrigation scheduling. Although CIMIS was initially designed to help agricultural growers and turf managers administering parks, golf courses and other landscapes to develop water budgets for determining when to irrigate and how much water to apply, the user base has expanded over the years. In addition to those mentioned above, current CIMIS data users include local water agencies, fire fighters, air control board, pest control managers, university researchers, school teachers and students, construction engineers, consultants, hydrologists, state and federal agencies, utilities, lawyers, weather agencies, and many more.

There are a number of active CIMIS stations in the Imperial Valley, including in

Seeley and Westmorland. These stations can provide evapotranspiration (ETo) information for the purpose of developing landscape water budgets and irrigation scheduling. It is estimated that this DMM will result in a 15%-20% reduction in demand for landscape irrigation.

DMM 6 – High Efficiency Washing Machine Rebate Program

A rebate program for incentives to purchase high-efficiency clothes washing machines (HECWs) is not cost effective at this time.

The City has 5,111 single-family residential water connections, and 175 multi- family connections. Assuming that there are four families per multi-family connection, there are 4*175 + 5,111 = 5,811 equivalent dwelling units with washing machines. Assuming that 10% of the population already use HECWs, there are approximately 5,230 standard washing machines that can be upgraded. Assuming that 10% of the machines are replaced with HECWs and a $100 rebate, the cost to the City will be 52 * $100, or $5,200. Assuming that the HECWs use an average of 15 gallons less water per load and there are 6 loads of wash per week per family, the benefit would be an overall saving of 243,000 gallons of water (0.7 Acre-Feet) per year. The cost to the participants was assumed to be $1,000 per unit, with a $100 rebate, or $900. The average cost of a regular washer was assumed to be $400, for a difference of $500 cost to the consumer. The total costs to the consumers are therefore $500*52= $26,000. The overall savings in water fees would be approximately 243 * $1.59 = $386.00

DMM 7 – Public Information Programs

The City will implement a public information program to promote water conservation and water conservation-related benefits. The program will include, when possible, but is not limited to, providing speakers to employees, community groups and the media; using paid and public service advertising; using bill inserts; providing information on customers' bills showing use for the last billing period compared to the same period the year before; providing public information to promote water conservation measures; and coordinating with other government agencies, industry groups, public interest groups, and the media. The program shall include, when possible, social marketing elements which are designed to change attitudes to influence behavior. This includes seeking input from the public to shape the water conservation message; training stakeholders outside the utility staff in water conservation priorities and techniques; and developing partnerships with stakeholders who carry the conservation message to their target markets.

DMM 8 – School Education Programs

The City's Resource Management Element (RME), found in the City's General Plan RME includes Policy 4.1.6: To implement programs to educate adults and children about the importance of water conservation and methods to reduce water use.

The City will implement the school education program to promote water conservation and water conservation-related benefits. Programs will include working with school districts and private schools in the service area to provide instructional assistance, educational materials, and classroom

presentations that identify urban, agricultural, and environmental issues and conditions in the local watershed. Educational materials shall meet the state education framework requirements and grade-appropriate materials shall be distributed. When mutually agreeable and beneficial, a lead regional agency will operate all or part of the education program. Implementation will commence on July 1, 2012.

The City shall maintain an active school education program to educate students in the agency's service area about water conservation and efficient water use.

The school information program shall consist of some of the following:

- Curriculum materials developed and/or provided by the City (including confirmation that materials meet state education framework requirements and are grade-level appropriate).
- Materials distributed to K-6 students. When possible, school education programs will reach grades 7-12 as well.
- Description of materials used to meet minimum requirement.
- Annual budget for school education program.
- Description of all other water supplier education programs (Lists follow in
    - Section

DMM 9 – Commercial, Industrial and Institutional Programs

Measures to achieve the water savings goal for Commercial, industrial, and institutional (CII) accounts for the City has been mainly focused on landscaping water savings, since landscaping irrigation makes up one of the highest demands during the summer; see DMM 5. The City is actively seeking funds for a regional recycled water treatment plant for industrial use.

DMM 10 – Wholesale Assistance

The City will continue to work with the Imperial Irrigation District to participate in regional DMM efforts through the Integrated Regional Water Management Plan (IRWMP), informational groups and projects, and determination of the most cost- effective DMMs.

DMM 11 – Conservation Pricing

For conservation pricing, the City uses meters for each type of water connection, billed on a monthly basis. The City has recently installed residential meters. Some commercial accounts are still billed on a flat rate. The City is in the planning process to complete the remaining commercial water meters.

The City's goal is to recover the maximum amount of water sales revenue from volumetric rates that is consistent with utility costs, financial stability, revenue sufficiency, and customer equity. In addition to volumetric rate(s), conservation pricing also includes the following other charges:

- Service connection charges designed to recover the separable costs of adding new customers to the water distribution system.

- Monthly meter/service charges to recover costs unrelated to the volume of water delivered or new service connections and to ensure system revenue sufficiency.

- Special rates and charges for temporary service, fire protection service, and other irregular services provided by the City.

- The City charges a flat rate plus water usage rate structure. The current flat rate is $36.29, with a water commodity charge of $1.59 per 1,000 gallons.

The City's total annual revenue from the volumetric rate divided by the total annual revenue of volumetric rate plus the total annual revenue from the fixed service charge was approximately 58% in 2010.
Let V stand for the total annual revenue from the volumetric rate(s) and M stand for total annual revenue from customer meter/service (fixed) charges, then the rate structure should be at least 70% for conservation pricing:

$$\frac{V}{V+M} > 70\%$$

The City should review its current water rate structure for conservation pricing. The flat rate should be reduced, while the volumetric rate is increased to encourage water residential water efficiency. It is recommended that a rate study be completed.

DMM 12 – Conservation Coordinator

The City will designate a person as the City's responsible conservation coordinator for program management, tracking, planning, and reporting on the DMM implementation. This may be a regional position.

DMM 13 – Water Waste Prohibition

The City enacted a No Waste Resolution prohibiting wasteful use of water as part of the 2010 UWMP. The Resolution is titled "PROHIBITING WASTEFUL USE OF WATER REGULATIONS AND RESTRICTIONS ON WATER USE". The implementation of this resolution is ongoing.

DMM 14 – Residential High Efficiency Toilet (HET) Replacement Programs

The City's General Plan (Resource Management Element) requires that all new developments to install low-flow showers and toilets. Consider implementing a low-flow replacement program for showers and toilets in existing facilities.

The City also encourages the replacement of existing water fixtures, toilets, and landscaping with water-conserving counterparts.

The City requires compliance with state regulations for water efficient devices in new construction, per the Uniform Building Code. Retailers in California are generally required to provide only high water efficiency toilets and appliances. Also, the State of California has enacted legislation to require retrofit for houses for sale or during rehabilitation.

The City's building department personnel perform drawing reviews/inspections during the building permit process. During this process, HET items, or lack thereof, are identified and noted to be included/installed in compliance with the applicable standards and codes. Upon satisfying those comments, a follow up review/inspection is performed prior to permit issuance to verify compliance.

9.3 Implementation over the Past Five Years

Provide a description of the supplier's water demand management measures. This description shall include all of the following: (1)(A) … a narrative description that addresses the nature and extent of each water demand management measure implemented over the past five years (10631(f)(1)(A)).

The City has implemented, to at least some extent, all DMM's listed previously. More specific information on what precise actions were taken when any particular DMM was implemented is not available. However, the City has far surpassed the 2015 Interim Target and continues towards continued water reduction through 2020.

9.4 Planned Implementation to Achieve Water Use Targets

Provide a description of the supplier's water demand management measures. This description shall include all of the following: (1)(A) … a narrative description that addresses the nature and extent of each water demand management measure implemented over the past five years (10631(f)(1)(A)).

The City continues striving to meet State water conservation and demand requirements, thus far the City has been successful in meeting all restrictions and water reduction targets. The City will continue relying on the DMM's in coming year to ensure future water reductions goals and targets are not compromised.

9.5 Members of the California Urban Water Conservation Council

For purposes of this part, urban water suppliers that are members of the California Urban Water Conservation Council shall be deemed in compliance with the requirements of subdivision (f) by complying with all the provisions of the "Memorandum of Understanding Regarding Urban Water Conservation in California," dated December 10, 2008, as it may be amended, and by submitting the annual reports required by Section 6.2 of that memorandum (10631(i)).

Chapter 10 – Plan Adoption, Submittal, and Implementation

10.1 Inclusion of All 2015 Data

The information presented within this report reflects the most current population estimates and water supply and use information. The report reflects input from City personnel regarding the current city status and future plans.

10.2 Notice of Public Hearing

10.2.1 Notice to Cities and Counties

Every urban water supplier required to prepare a plan shall… at least 60 days prior to the public hearing on the plan … notify any city or county within which the supplier provides waters supplies that the urban water supplier will be reviewing the plan and considering amendments or changes to the plan (10621(b)).

…The urban water supplier shall provide notice of the time and place of hearing to any city or county within which the supplier provides water supplies. A privately owned water supplier shall provide an equivalent notice within its service area…(10642).

Figure 62 shows the summary of notification to cities and counties.

Table 10-1 Retail: Notification to Cities and Counties		
City Name	60 Day Notice	Notice of Public Hearing
Add additional rows as needed		
Brawley	☑	☑
Other?	☐	☐
	☐	☐
County Name *Drop Down List*	60 Day Notice	Notice of Public Hearing
Add additional rows as needed		
Imperial County	☑	☑
	☐	☐
	☐	☐
State of California if required		

Figure 62: Table 10-1 Retail: Notification to Cities and Counties

10.2.2 Notice to the Public

…Prior to adopting a plan, the urban water supplier shall make the plan available for public inspection…Prior to the hearing, notice of the time and place of hearing shall be published within the jurisdiction of the publicly owned water supplier pursuant to Section 6066 of the Government Code… (10642).

On April 7th and April 14th, 2016, notification of Public Hearing was advertised in the local newspaper. The advertisement may be found in **Appendix D.**

10.3 Public Hearing and Adoption

…Prior to adopting a plan, the urban water supplier shall hold a public hearing thereon (10642).

In complying with this part, an urban retail water supplier shall conduct at least one public hearing to accomplish all of the following: (1) Allow community input regarding the urban retail water supplier's implementation plan for complying with this part. (2) Consider the economic impacts of the urban retail water supplier's implementation plan for complying with this part. (3) Adopt a method, pursuant to subdivision (b) of Section 10608.20 for determining its urban water use target (10608.26(a)).

10.3.1 Adoption

…After the hearing, the plan shall be adopted as prepared or as modified after the hearing (10642).

10.4 Plan Submittal

An urban water supplier shall update and submit its 2015 plan to the department by July 1, 2016 (10621(d)).

An urban water supplier shall submit to the department, the California State Library, and any city or county within which the supplier provides water supplies a copy of its plan no later than 30 days after adoption (10644(a)(1)).

The urban water supplier shall provide that portion of its urban water management plan prepared pursuant to this article to any city or county within which it provides water supplies no later than 60 days after the submission of its urban water management plan (10635(b)).

A copy of the 2015 UWMP was made available to each city in the Imperial Valley that is required to submit an UWMP, the County of Imperial, and the Imperial Irrigation District no later than 60 days after submission to DWR.

10.4.1 Submitting a UWMP to DWR

The City of Brawley will submit the UWMP to DWR, more information will be included in this section at a later date.

10.4.2 Electronic Data Submittal

The City of Brawley will submit the UWMP to DWR, more information will be included in this section at a later date.

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10.4.3 Submitting a UWMP to the California State Library

The City of Brawley will submit the UWMP to CA state library following plan adoption, more information will be included in this section at a later date.

10.4.4 Submitting a UWMP to Cities and Counties

The City of Brawley will share the UWMP with the appropriate nearby cities and counties, more information will be included in this section at a later date.

10.5 Public Availability

Not later than 30 days after filing a copy of its plan with the department, the urban water supplier and the department shall make the plan available for public review during normal business hours. (10645).

Within 30 days of submitting the UWMP to DWR, the adopted UWMP has been or will be available for public review during normal business hours. The plan is available for review at City Hall located at:

City Council Chambers
383 Main Street
Brawley, CA 92227

10.6 Amending an Adopted UWMP

The amendments to, or changes in, the plan shall be adopted and filed in the manner set forth in Article 3 (commencing with Section 10640) (10621(c)).

Copies of amendments or changes to the plans shall be submitted to the department, the California State Library, and any city or county within which the supplier provides water supplies within 30 days after adoption (10644(a)(1)).

If changes are necessary to the UWMP after adoption by the city, the City will hold another public hearing to readopt the plan.

After the hearing, the plan shall be adopted as prepared or as modified after the hearing (10642). An urban water supplier shall implement its plan adopted pursuant to this chapter in accordance with the schedule set forth in its plan (10643).

The city will implement the UWMP after adoption. Procedures to implement will include annual reviews of progress on the Demand Management Measures, use of the UWMP in developing a revised Water Master Plan and in the planning process of new development within the City.

An urban water supplier shall submit to the department, the California State Library, and any city or county within which the supplier provides water supplies a copy of its plan no later than 30 days after adoption. Copies of amendments or changes to the plans shall be submitted to the department, the California State Library, and any city or county within which the supplier provides water supplies within 30 days after adoption (10644(a)).

Within 30 days of adoption, the adopted UWMP will be submitted to DWR and the California State Library. Brawley does not supply water to another city or nor to any area of Imperial County.

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Appendix A

2013 IID Area Receiving Report SWRCB Report

2013 ANNUAL REPORT OF
IMPERIAL IRRIGATION DISTRICT PURSUANT TO
SWRCB REVISED ORDER WRO 2002-013

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Appendix 2 – Water Conservation Projects for Order WR 88-20 Transfer to MWD

Appendix 3 – Schedule of Mitigation Fallowing Alternative for Salton Sea Conservation Strategy

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Appendix 6 - Template -2013-2014 IID Fallowing Contract with participating farmers

Appendix 7 – Letters re Temporary Storage of Entitlement Water in Salton Sea for Later Use as Mitigation Water

Appendix 8 – The last IID Annual Implementation Report was completed in 2009. This report has not been produced since then due to staffing constraints.

Appendix 9 – IID Water Conservation Transfer Project Annual Report, In-Valley Permits, For Calendar Year 2013

Appendix 10 – IID Water Dept. Draft 2013 Crop Rank and Acreage and Draft Annual Inventory of Areas Receiving Water 2011, 2012 and 2013. IID Water Department Final 2012 Crop Rank and Acreage and Annual Inventory of Areas Receiving Water 2010, 2011 and 2012

Appendix 11 – Canal loss issue resolution correspondence

Appendix 12 – Main Canal Seepage Recovery Project Description

I. INTRODUCTION

On October 5, 1998, Imperial Irrigation District ("IID") and the San Diego County Water Authority ("SDCWA") submitted a joint petition to the SWRCB seeking approval to transfer conserved water from IID to SDCWA as a long-term transfer and to change the place of use, point of diversion and purpose of use necessary to allow the transfer under IID's Permit 7643. This petition was later amended to also include transfers to the Coachella Valley Water District ("CVWD") and/or The Metropolitan Water District of Southern California ("MWD"), for water transfers to CVWD that CVWD determines to reduce or postpone. After completion of a lengthy water rights hearing, the SWRCB issued Order WRO 2002-013 and then Revised Order WRO 2002-013 in accordance with WRO 2002-016.

Pursuant to Revised Order WRO 2002-013 (the "Order"), IID is to submit an annual report by March 31 of each year to the Chief of the Division of Water Rights reporting on certain facts and actions taken during the prior calendar year, as specified on pages 85 to 92 of the Order. This annual report covers calendar year 2013. As set forth in detail in Appendix 1, IID has conserved water for transfers and QSA-related and other purposes between 2003 and 2013.

The long-term transfer of conserved water from IID to SDCWA commenced in calendar year 2003 following (i) IID's adoption on October 2, 2003, of the September 2003 Amended and Restated Addendum to the Final EIR/EIS for the Transfer Project, CEQA Findings and Statement of Overriding Considerations and the MMRP; (ii) the recording of a Notice of Determination for the Transfer Project and posting by the State Clearinghouse on October 8, 2003; and (iii) execution of the QSA and related agreements on October 10, 2003.

Pursuant to the Fourth Amendment to the IID/SDCWA Transfer Agreement and the Amended and Restated Addendum to the Final EIR/EIS, and other QSA and Related

Agreements, IID conserved water for transfer to SDCWA in 2003 by entering into voluntary 13-month contracts with farmers to fallow some of their farmland. Pursuant to a solicitation process commenced after October 10, 2003, IID entered into 69 contracts with farmers as of December 1, 2003, to fallow approximately 5,764 acres to produce the 10,000 AF of conserved water transferred to SDCWA in calendar year 2003. The monthly and annual schedule of conserved water created by fallowing for transfer to SDCWA is contained in Appendix 1. As will be noted, only 3,445 AF was created in December 2003, with the balance created from January through December 2004. Nonetheless, SDCWA received its full transfer volume in December 2003 by IID utilizing the Inadvertent Overrun and Payback Program ("IOPP") implemented by the Secretary of Interior. All Lower Colorado River Basin States repayments for 2003 overruns were waived by the United States Bureau of Reclamation ("BOR") in 2004.

IID conserved water for transfer to SDCWA in 2004 by entering into voluntary 12-month contracts with farmers to fallow some of their farm land. Pursuant to a solicitation program between April 1 and April 30, 2004, IID entered into 118 12-month contracts with farmers as of July 1, 2004, to fallow approximately 12,127 acres to produce the 20,000 AF of conserved water transferred to SDCWA in calendar year 2004, plus conserved water for other QSA and Related Agreement purposes. The monthly and annual schedule of conserved water created by fallowing for transfer to SDCWA and for other purposes is also contained in Appendix 1.

IID conserved water for transfer to SDCWA in 2005 by entering into voluntary 12-month contracts with farmers to fallow some of their farm land. Pursuant to a rollover of volunteers from the 2004 program solicitation plus the participation of IID owned land, IID entered into 105 12-month contracts with farmers as of July 1, 2005, to fallow approximately 11,676.2 acres to produce the 30,000 AF of conserved water transferred to SDCWA in calendar year 2005, plus

conserved water for other QSA and Related Agreement purposes. The monthly and annual schedule of conserved water created by fallowing for transfer to SDCWA and for other purposes is also contained in Appendix 1.

IID conserved water for transfer to SDCWA in 2006 by utilizing some of its owned land and by entering into voluntary 12-month contracts with farmers to fallow some of their farmland. Pursuant to a solicitation program in the spring of 2006, IID entered into 108 12-month contracts with farmers as of July 1, 2006. Those contracts, plus the participating IID-owned land, resulted in the fallowing of approximately 17,984.4 acres to produce the 50,000 AF of conserved water transferred to SDCWA in calendar year 2006, plus conserved water for other QSA and Related Agreement purposes. The monthly and annual schedule of conserved water created by fallowing for transfer to SDCWA and for other QSA-related purposes is also contained in Appendix 1.

IID conserved water for transfer to SDCWA in 2007 by entering into voluntary 12-month contracts with farmers to fallow some of their farmland. Pursuant to a solicitation program in the spring of 2007, IID entered into 150 12-month contracts with farmers as of July 1, 2007. Those contracts resulted in the fallowing of approximately 16,172 acres to produce the 50,000 AF of conserved water transferred to SDCWA in calendar year 2007, plus conserved water for other QSA and Related Agreement purposes. The monthly and annual schedule of conserved water created by fallowing for transfer to SDCWA and for other QSA-related purposes is also contained in Appendix 1.

IID conserved water for transfer to SDCWA in 2008 by entering into voluntary 12-month contracts with farmers to fallow some of their farmland. Pursuant to a solicitation program in the spring of 2008, IID entered in to 133 12-month contracts with farmers as of July 1, 2008. Those contracts resulted in the fallowing of approximately 12,778.7 acres to produce the 50,000 AF of

conserved water transferred to SDCWA in calendar year 2008, plus conserved water for other QSA and Related Agreement purposes. The monthly and annual schedule for conserved water created by fallowing for transfer to SDCWA and for other QSA-related purposes is also contained in Appendix 1.

The transfer of conserved water to CVWD commenced in 2008. IID created 4,000 AF of conserved water by efficiency improvements to the IID water distribution system. IID built and operated a seepage recovery project on the Main Canal to capture seepage and return it to the canal for delivery. The monthly and annual schedule of conserved water created and transferred to CVWD is also contained in Appendix 1. A more detailed description of the Main Canal Seepage Recovery Project is contained in Appendix 12.

IID conserved water for transfer to SDCWA in 2009 by entering into voluntary 12-month and 24-month contracts with farmers to fallow some of their farmland. Pursuant to a solicitation program in the spring of 2009, IID entered into 112 12-month contracts and 79 24-month contracts with farmers as of July 1, 2009. Those contracts resulted in the fallowing of approximately 17,854 acres to produce the 60,000 AF of conserved water transferred to SDCWA in calendar year 2009, plus conserved water for other QSA and Related Agreement purposes. The monthly and annual schedule for conserved water created by fallowing for transfer to SDCWA and for other QSA-related purposes is also contained in Appendix 1.

The transfer of conserved water to CVWD increased in 2009 in accordance with the transfer schedule contained in Appendix 3. IID created 8,000 AF of conserved water by the efficiency improvements to the IID water distribution system described above.

In addition to the volumes conserved in the previous (and ongoing) 12 and 24-month fallowing programs, IID conserved water for transfer to SDCWA in 2010 by entering into

voluntary 12-month contracts with farmers to fallow some of their farmland. Pursuant to a solicitation program in the spring of 2010, IID entered into 96 12-month contracts with farmers as of July 1, 2010. Those contracts resulted in the fallowing of approximately 9,330.6 acres to produce the 70,000 AF of conserved water transferred to SDCWA in calendar year 2010, plus conserved water for other QSA and Related Agreement purposes. The monthly and annual schedule for conserved water created by fallowing for transfer to SDCWA and for other QSA-related purposes is also contained in Appendix 1.

The transfer of conserved water to CVWD increased in 2010 to 12,000 AF in accordance with the transfer schedule contained in Appendix 3. In February, 2010, the pumps for IID's Canal Seepage Recovery System were turned off for repairs required due to mechanical problems, erosion and storm-related events. On April 4, 2010, an earthquake caused extensive damage to IID's delivery systems that required emergency and then permanent repairs. IID employees were diverted to those larger, more urgent problems so the Canal Seepage Recovery System was not operable until October 2010. IID therefore could create only 6,809 AF of conserved water by the efficiency improvements to the IID water distribution system. The balance of the scheduled water transfer was delivered to CVWD at the Coachella Canal and will be repaid to the River system by IID from credits in the Intentionally Created Surplus ("ICS") account in accordance with the federal ICS and Inadvertent Overrun and Payback Policy ("IOPP").

In addition to the volumes conserved in the previous (and ongoing) 12-month fallowing programs, IID conserved water for transfer to SDCWA in 2011 by entering into voluntary 12-month contracts with farmers to fallow some of their farmland. Pursuant to a solicitation program in the spring of 2011, IID entered into 62 12-month contracts with farmers as of July 1,

2011. Those contracts resulted in the fallowing of approximately 5,796 acres to produce the 80,000 AF of conserved water transferred to SDCWA in calendar year 2011, plus conserved water for other QSA and Related Agreement purposes. However, while IID contracted for the full 80,000 AF of conserved water scheduled for transfer in 2011 from the 2010-2011 and 2011-2012 fallowing programs, only 63,278 AF was physically conserved in calendar year 2011. The balance of 16,722 AF was conserved and transferred in the first half of calendar year 2012. The monthly and annual schedule for conserved water created by fallowing for transfer to SDCWA and for other QSA-related purposes is also contained in Appendix 1.

The transfer of conserved water to CVWD increased in 2011 in accordance with the transfer schedule contained in Appendix 3. IID created 16,000 AF of conserved water by the efficiency improvements to the IID water distribution system described above.

In addition to the volumes conserved in the previous (and ongoing) 12-month fallowing programs, IID conserved water for transfer to SDCWA in 2012 by entering into voluntary 12-month contracts with farmers to fallow some of their farmland. In 2012 IID adopted a Temporary Land Conversion Fallowing Policy (TLCFP, see http://www.iid.com/Modules/ShowDocument.aspx?documentid=5646) to address the implementation of new non-agricultural projects on agricultural lands with reduced water demands (such as renewable energy projects) thereby creating conserved water. IID also implemented a shorter term 9-month agricultural fallowing program and, in some circumstances, allowed its 12-month agricultural fallowing participants to extend their term up to an additional six months in 2012. Pursuant to a solicitation process in the spring of 2012, IID entered into 331 agricultural fallowing contracts with farmers as of July 1, 2012 (with an earlier start date upon request), and another 24 agricultural fallowing contracts as of October 1, 2012. Those contracts

resulted in the fallowing of approximately 33,884 acres, in addition to the 1,386 acres of fallowing attributable to the TLCFP, to produce the 90,000 AF of conserved water transferred to SDCWA in calendar year 2012, plus conserved water for other QSA and Related Agreement purposes. The monthly and annual schedule for conserved water created by fallowing for transfer to SDCWA and for other QSA-related purposes is also contained in Appendix 1.

The transfer of conserved water to CVWD increased in 2012 in accordance with the transfer schedule contained in Appendix 3. IID created 21,000 AF of conserved water by the efficiency improvements to the IID water distribution system described above.

In addition to the volumes conserved in the previous (and ongoing) 12-month fallowing programs, IID conserved water for transfer to SDCWA in 2013 by entering into voluntary 12-month contracts with farmers to fallow some of their farmland. In 2013 IID continued implementation of its Temporary Land Conversion Fallowing Policy (TLCFP) to address the implementation of new non-agricultural projects on agricultural lands with reduced water demands (such as renewable energy projects) thereby creating conserved water. By the end of 2013, 70 agricultural fields totaling 6,859 acres had been converted to solar projects and, via the TLCFP, designated for fallowing conservation. IID also implemented a 12-month calendar year agricultural fallowing program and enrolled 29 fields for the 2013 calendar year, resulting in the fallowing of 1,827 acres, to supplement its more routine mid-year to mid-year fallowing program. Pursuant to a solicitation process in the spring of 2013, IID also entered into 383 agricultural fallowing contracts with farmers as of July 1, 2013 (with an earlier start date upon request). Those contracts resulted in the fallowing of approximately 34,432 acres, in addition to the 6,859 acres of fallowing attributable to the TLCFP. In addition, IID began converting from fallowing to efficiency conservation of which 17,276 AF was conserved to meet its SDCWA

transfer obligation. IID's fallowing and on-farm efficiency programs produced the 100,000 AF of conserved water transferred to SDCWA in calendar year 2013, plus conserved water for other QSA and Related Agreement purposes. The monthly and annual schedule for conserved water created by fallowing for transfer to SDCWA and for other QSA-related purposes is also contained in Appendix 1.

The transfer of conserved water to CVWD increased in 2013 in accordance with the transfer schedule contained in Appendix 3. IID created 26,000 AF of conserved water by the efficiency improvements to the IID water distribution system described above and by other previously identified fallowing programs.

II. REVISED ORDER WRO 2002-013 REQUESTED INFORMATION

A. Report on Water Transferred

The Order (p.85 Condition No. 4), requests IID to verify the amount of water transferred. Condition No. 4 requests the following information:

(a) The quantity of water diverted at Imperial Dam;

(b) An estimate of the quantity of water that is returned to the Colorado River from diversions made at Imperial Dam;

(c) The quantity of water subject to variation permitted by the IOPP adopted by the Department of Interior;

(d) Gross diversions at Whitsett Intake plus the quantity of water diverted at Whitsett Intake pursuant to the Order;

(e) An estimate of the reductions in deliveries to participating farmers;

(f) An estimate of the quantity of water conserved by conservation projects implemented by the permittee; and

(g) An estimate of the quantity of water conserved by efficiency-based conservation measures.

Each year, IID produces an Annual QSA Water Report that identifies IID compliance with its water conservation, transfer and mitigation obligations under the SWRCB Order and QSA and Related Agreements. Thirty-three tables (and a summary bar chart), based on IID's best estimates as of the date of this Annual Report, are included in Appendix 1 entitled:

- 2003-2013 IID Annual Conserved Water Summary
- 2013 IID Water Use
- 2012 IID Water Use
- 2011 IID Water Use
- 2010 IID Water Use
- 2009 IID Water Use
- 2008 IID Water Use
- 2007 IID Water Use
- 2006 IID Water Use
- 2005 IID Water Use
- 2004 IID Water Use
- 2003 IID Water Use
- SDCWA Transfer Accounting
- CVWD Transfer Accounting
- Salton Sea Mitigation Accounting
- CRWDA Exhibit C Accounting
- CVWD Groundwater Storage

- IOPP Accounting
- ICS Accounting
- Provisional Lake Mead Accounting
- Total Fallowing
- SDCWA Transfer Fallowing
- Salton Sea Mitigation Fallowing
- CRWDA Exhibit C Fallowing
- IOPP Fallowing
- Early CRWDA Exhibit C Fallowing
- Intentionally-Created Surplus By Fallowing
- Total Efficiency Conservation
- SDCWA Efficiency Conservation
- CVWD Efficiency Conservation
- IOPP Efficiency Conservation
- ICS Efficiency Conservation
- SDCWA Diversion at Parker Dam Accounting
- CVWD Diversion at Parker Dam Accounting.

The Bureau of Reclamation ("BOR") provides IID and other users of Colorado River water with annual Colorado River accounting and water use reports containing the information requested in Condition No. 4 (a)-(d). The BOR does not generally complete its annual reports until May of each year, and IID has not yet received the final BOR 2013 annual report. IID received the final BOR 2004 and 2005 reports in 2006, the final 2006 report in October 2007, the final 2007 report in December 2008, the final 2008 report in August 2009, the final 2009 report

in May 2010, the final 2010 report in May 2011, the final 2011 report in May 2012 and the final 2012 report in May 2013. These reports can be viewed on the BOR website at http://www.usbr.gov/lc/region/g4000/wtracct.html. Attached as Appendix 5 is a reconciliation of the BOR final decree reporting numbers compared to those reported by IID in its 2004, 2005, 2006, 2007, 2008, 2009, 2010, 2011 and 2012 SWRCB Annual Reports. No material changes occurred. All differences are nominal compared to the provisional amounts previously reported by IID, with one exception for the 2007 gross diversion by MWD at Whitsett Intake, which variation had no relationship to IID's compliance with the SWRCB-approved transfers. Additionally, IID and the BOR had differing perspectives on how to calculate certain canal delivery losses which were resolved in December 2007. A copy of the resolution correspondence is attached as Appendix 11. The resolution reduced the yield of IID's 2004 to 2006 fallowing program by 1,375 AF as reflected on page 11 of the 2008 Annual QSA Water Report, but did not affect the volume of conserved water transferred or used to mitigate impacts on the Salton Sea. IID prepared a Revised 2011 SWRCB Annual Report that was delivered to the SWRCB via FedEx on November 10, 2012.

The most recent "provisional" information from the BOR for IID for 2013, dated February 5, 2014, is located at http://www.usbr.gov/lc/region/g4000/hourly/use13.pdf and was used to prepare information for 2013 in the various tables of Appendix 1. Pursuant to the information in the BOR provisional 2013 data report, IID responds to Condition 4(a)-(d) as follows:

(a) 2,657,038 AF diverted at Imperial Dam.[1]

(b) 101,949 AF measured return flows to the Colorado River.

(c) IID has an IOPP account allowing variation in consumptive use above 3.1 MAFY in the aggregate volume of 310,000. IID inadvertently overran in 2003 in the amount of 6,102 AF. The payback of all overruns in the Lower Basin States for 2003 was waived by BOR. IID had no overrun under the IOPP for 2004 or 2005. As of the end of 2006, IID had an inadvertent overrun account balance in the amount of 18,914 AF, prior to a reduction to 8,957 AF as a result of 1,000 AF of Intentionally Created Surplus and 8,957 AF of unused entitlement by Nevada made available to IID pursuant to Article II(B)(6) of the Decree in Arizona v. California that was applied to the overrun. IID had an inadvertent overrun in 2007 in the amount of 6,358 AF. IID has paid back all of its overrun and slightly more as evidenced in Appendix 1. For 2008, IID had an underrun of 47,999 AF. For 2009, IID had an underrun of 237,767 AF. For 2010, IID had an underrun of approximately 207,925[2]. For 2011, IID had an end-of-year overrun balance of 82,662 according to BOR after the application of 10,528 AF of excess conservation that was created by IID in 2011; however IID continues to consider the 2011 conservation shortfall of 16,722 AF to have been transferred by utilization of IID's IOPP right in that calendar year, which results in an overrun of 99,384 AF in 2011. For 2012, IID had an end-of-year overrun balance of 134,076 AF after the application of 14,299 AF af of excess conservation created by IID in 2012 . For 2013, IID had an underrun of approximately 64,746 AF.

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[1] Includes consumptive use deliveries from the Warren H. Brock Reservoir, a newly constructed off-stream Colorado River system storage reservoir that was put into operation in November 2010. Brock Reservoir is located on the All-American Canal (AAC) downstream of Imperial Dam. IID operates Brock Reservoir at the direction of USBR and receives consumptive use deliveries from the Brock Reservoir outlet channel at station 21+36 on the AAC in lieu of diversions at Imperial Dam.

[2] See Section 8 below regarding storage of entitlement water for future use as mitigation.

(d) Gross Diversions at Whitsett Intake – 1,015,805 AF (return flow credit of 3,087 AF). Diversions at Whitsett Intake, pursuant to the Order – 100,000 AF.

Condition 4(e)-(g). Pursuant to the fallowing contracts in effect for 2013, IID provisionally estimates that it reduced deliveries to participating farmers by 100,000 AF as measured at the Colorado River, net of return flows, and estimates the quantity of water conserved by fallowing for transfer to SDCWA in 2012 at 100,000 AF. 26,000 AF of water was conserved by efficiency-based conservation measures for transfer in 2013 pursuant to Revised Order WRO 2002-013. Efficiency-based conservation measures implemented pursuant to Order WR 88-20 generated 105,000 AF of conserved water that was transferred to MWD. Appendix 2 identifies the type of efficiency-based conservation measures utilized to create the conserved water transferred to MWD.

B. Salton Sea Habitat Conservation Strategy Compliance

Condition Nos. 5 and 6, p. 86 of the Order requires the preparation of a plan and annual reporting on Salton Sea salinity and elevation, and implementation of the Salton Sea Habitat Conservation Strategy as described in the Final EIR. On October 23, 2003, IID petitioned the Chief of the Division of Water Rights to modify Condition Nos. 5 and 6 to be consistent with an alternate Salton Sea Habitat Conservation Strategy utilizing a specific fallowing-for-transfer schedule and a fallowing-for-mitigation schedule as reflected in the QSA and Related Agreements and the September 2003 Amended and Restated Addendum to the Final EIR/EIS. After allowing for comment on IID's request and consideration of all submitted material, on January 7, 2004, the Chief of the Division of Water Rights approved IID's use of the alternate Salton Sea Habitat Conservation Strategy. In essence, under this alternate strategy, IID creates conserved water by fallowing in addition to the conserved water transferred to SDCWA, on an

annual schedule attached as Appendix 3, and causes the delivery of mitigation water to the Salton Sea. This strategy will mitigate salinity and elevation impacts of IID's water transfers to SDCWA for up to 15 years by causing replacement inflow to the Salton Sea to offset the reduced inflow caused by such transfers to SDCWA. IID and SDCWA have filed a modification petition that includes a request to modify this mitigation. See Section III.D. below for more detail.

1. Salton Sea Mitigation Water For 2003

As Appendix 3 illustrates, IID was to create 5,000 AF of conserved water by fallowing in 2003 for Salton Sea mitigation purposes. However, authorization to utilize this alternative mitigation strategy was not received by IID until early January 2004. On December 19, 2003, IID informed the Chief of the Division of Water Rights of its intent to "roll over" the 2003 mitigation water into 2004, and no objection was received. Thus, for 2003, IID did not implement Condition Nos. 5 and 6, as now modified, but added 5,000 AF to its mitigation obligation for 2004. IID produced a total of 15,000 AF for Salton Sea mitigation purposes in 2004.

IID delivered 14,359 AF of fallowed conserved water to the Salton Sea in calendar year 2004. This volume is 641 AF less than IID's delivery obligation and 641 AF less than reported to the SWRCB in the 2004 Annual Report. The explanation for this discrepancy is as follows. All volumes for transferred conserved water, mitigation fallowing, and delivery of mitigation water to the Salton Sea are in common units of consumptive use, as measured at Imperial Dam, net of measured and unmeasured return flows. The BOR reports to IID the volumes of measured and unmeasured return flows several months after the end of each calendar year. Therefore, IID is required to estimate the volumes of return flows during a calendar year when determining the volume of water to divert into the delivery path to the Salton Sea in satisfaction of the mitigation

requirement. IID's diversion was low by the 641 AF total, based on the report of actual measured and unmeasured return flow received by IID from the BOR in 2005. However, IID made up this under-diversion to the Salton Sea in 2005 as evidenced in Appendix 1, and explained further below, as advance delivery. Salton Sea mitigation water was physically delivered to the Salton Sea by taking diversions from the Colorado River into the All-American Canal and then discharging the diversions into the New River. The mitigation volumes diverted were measured by a calibrated weir equation at the AAC New River turnout.

2. Advance Delivery of Salton Sea Mitigation Water in 2004 and 2005

At the request of the BOR and in consultation with Lower Basin Colorado River contractors, IID caused 15,880 AF of Colorado River re-regulation water to be conserved and delivered to storage in the Salton Sea in 2004. IID caused 21,476 of re-regulation water to be conserved and delivered to storage in the Salton Sea in 2005. The letter agreement between BOR and IID describes the conservation of re-regulation water as follows:

> Water from Colorado River system storage spilled or released for flood control purposes, or released to fill a water order but not then diverted by an entitlement holder, might otherwise flow to the NIB [Northern International Boundary] in excess of Treaty obligations. Historically, when possible, this water has been subject to temporary re-regulation by Reclamation, for example when it has been captured and held in Senator Wash Reservoir. Operation of Senator Wash Reservoir has been restricted due to dam safety concerns.
>
> The purpose of temporary re-regulation is to permit the maximum amount of water from the Colorado River system to be put to beneficial use within the United States. Temporary re-regulation is consistent with Reclamation's goal of meeting but not exceeding Treaty obligations, and is consistent with the Decree in Arizona v. California, the 2003 Colorado River Water Delivery Agreement (CRWDA), the Inadvertent Overrun & Payback Policy (IOPP), and the Interim Surplus Guidelines (ISG). Temporary re-regulation provides Reclamation with critical flexibility in river management. The temporary re-regulation of river flow that otherwise would flow to the NIB in excess of Treaty obligations may be effected at

> the request of Reclamation, but only in the event the water cannot otherwise be stored by Reclamation works or diverted by an entitlement holder in satisfaction of an existing entitlement.
>
> In the latter part of 2004 and the early part of 2005, in response to heavy rainfall occurring in a watershed that is tributary to the lower Colorado River, Reclamation released water from Lake Havasu to protect the integrity of Parker Dam. Also, as a result of these rainstorms, water ordered by entitlement holders and released from Hoover Dam was not diverted. In an effort to prevent these releases from being lost to beneficial use within the United States as excess flows to the NIB, and in light of the current storage capacity limitation at Senator Wash Reservoir, Reclamation requested that IID capture a portion of this water and convey it to the Salton Sea. IID accommodated such a request from Reclamation in 2004 and 2005. Reclamation anticipates the possible need for additional temporary re-regulation of Colorado River water with the assistance of IID in 2006.

In the years subsequent to advance delivery, as identified on Appendix 1, water is conserved from fallowed lands in the amount identified in Appendix 3 and left in Lake Mead, rather than being diverted to the Salton Sea, as an exchange for the previously conserved and stored Colorado River re-regulation water. Advance deliveries of re-regulation water provide a temporal benefit to the Salton Sea by satisfying the cumulative mitigation delivery schedule identified in Appendix 3 in advance of the annual deadlines. An accounting of the water delivered to the Salton Sea in 2004 and 2005 as advance delivery of re-regulation water is contained in Appendix 1.

3. <u>Salton Sea Mitigation Water for 2006</u>

IID produced 20,000 AF of conserved water from fallowing in 2006, an amount equal to the volume that was to be delivered to the Salton Sea as transfer mitigation water under the schedule in Appendix 3. However, pursuant to terms of the re-regulation letter agreement between IID and BOR, and because of the advance deliveries described in Section B.2 above, IID left the 20,000 AF of conserved water in Lake Mead rather than delivering the conserved

water to the Salton Sea. As of the end of 2006, the Salton Sea had received 1,715 AF of advance delivery water earlier and in excess of the required mitigation schedule. An accounting of the water delivered to the Salton Sea as advance delivery of re-regulation water is contained in Appendix 1.

4. Salton Sea Mitigation Water for 2007

IID produced 23,306 AF of conserved water from fallowing in 2007 for Salton Sea mitigation, an amount slightly less than the volume that was to be delivered to the Salton Sea as transfer mitigation water under the schedule in Appendix 3. However, as can be seen from the Salton Sea Mitigation Accounting in Appendix 1, as of the end of 2007, the accounting for the 37,356 AF of advance delivery to the Salton Sea, the 641 AF of under delivery to the Salton Sea in 2004, and the settling up by leaving fallowed conserved water in Lake Mead, has almost "zeroed out" the early mitigation water delivered to the Salton Sea in 2004 and 2005, leaving a net surplus of 21 AF of early mitigation water delivered to the Salton Sea as of the end of 2007.

5. Salton Sea Mitigation Water for 2008

IID produced 26,085 AF of conserved water from fallowing in 2008 for Salton Sea mitigation, an amount that was 1,085 AF in excess of the volume that was to be delivered to the Salton Sea as transfer mitigation water under the schedule in Appendix 3. As of the end of 2008, the IID had delivered a cumulative excess volume of 1,106 AF to the Salton Sea as transfer mitigation.

6. Salton Sea Mitigation Water For 2009

IID produced 30,158 AF of conserved water from fallowing in 2009 for Salton Sea mitigation, an amount that was 158 AF in excess of the volume that was to be delivered to the

Salton Sea as mitigation water under the schedule in Appendix 3. As of the end of 2009, IID had delivered a cumulative excess volume of 1,264 AF to the Salton Sea as mitigation water.

7. Salton Sea Mitigation Water For 2010

Under the schedule in Appendix 3, 35,000 AF of mitigation water was to be delivered to the Salton Sea. IID delivered 33,736 AF of water conserved by fallowing in 2010 to the Salton Sea. The balance of 1,264 AF was provided by the excess mitigation water previously created and delivered to the Salton Sea, leaving a cumulative excess volume of 25 AF of mitigation water being held in Lake Mead at the end of 2010 for future use.

8. Storage of IID Entitlement Water In Salton Sea For Future Use as Mitigation Water.

In October 2010, IID expected that the Court of Appeal's decision regarding the QSA Validation Litigation (as described in more detail in Section III.D. below) would be issued in mid-2011. That presented IID with several QSA implementation challenges. IID determined that it would be very difficult to arrange for fallowing contracts that would run from July 1, 2011 to June 30, 2012 if the appeal was resolved adversely to IID and payment was at risk. The solicitation period for such contracts runs from February to April 2011. IID was worried about assuring contracting farmers that IID would be able to use the conserved water created by fallowing during July 1, 2011 to June 30, 2012, or that IID would be paid for transferring that conserved water as required by the QSA. IID also was concerned about the risk of not being reimbursed for mitigation activities for 2011 by the QSA Joint Powers Authority if the QSA-JPA Agreement was affirmed as an unconstitutional agreement and no further stay was granted.

The litigation uncertainty was exacerbated by the California Legislature cancelling the continuing appropriation for the California Department of Fish and Game[3] Preservation Fund well after execution of the QSA and IID's implementation of the Transfer Project. The Preservation Fund was the appropriation identified by California Legislative Counsel as the basis for CDFW funding of its contingent QSA mitigation payment obligation. IID and other QSA parties are engaged in a process to evaluate how to obtain assurance of California performance or how to satisfy QSA mitigation obligations in the face of a possible shortfall in funding for mitigation.

IID has historically used its entitlement of Colorado River water to satisfy QSA mitigation obligations (subject to agreed-upon reimbursement) for the replacement of wetlands habitat lost due to the lining of the All American Canal and for the Managed Marsh. In 2010, IID consumptively used Colorado River water by temporarily storing it in the Salton Sea for later use to mitigate QSA impacts on the Salton Sea that require mitigation in 2011 and the first half of 2012. IID's consumptive use in 2010 for this purpose was 46,546 AF, which was sufficient for 2011 mitigation and will also provide the amount needed for mitigation through June 30, 2012. This allowed IID to mitigate Salton Sea impacts for its 2011 and half of its 2012 conserved water transfers to SDCWA, without having to create 62,500 AF of mitigation water through fallowing contracts that would run through June 30, 2012.

Creating conserved water for transfer by fallowing reduces inflow to the Salton Sea and a like amount of mitigation water must replace the reduced inflow. Creating mitigation water by fallowing also reduces inflow to the Salton Sea and a like amount of mitigation water must also replace that reduced inflow. Providing consumptive use water for mitigation does not reduce

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[3] Recently renamed California Department of Fish and Wildlife ("CDFW").

inflows to the Salton Sea and thereby reduces the total amount of mitigation water required for a transfer of Conserved Water. The amount of mitigation water required to compensate for creation of Conserved Water for transfer does not change, but there is no additional mitigation water required to compensate for creating mitigation water by fallowing.

The QSA JPA will benefit from IID's sourcing mitigation water from stored consumptive use rather than fallowing, by saving an estimated $6.3 million in mitigation reimbursement expenses that would otherwise be paid to IID for this period. The savings comes from two factors: a lesser volume of mitigation water is required and the cost per acre foot of the mitigation water is lower as it is only a delivery cost and does not include the fallowed water expense.

IID notified the BOR of its intention to temporarily store entitlement water in the Salton Sea for later use as mitigation water for the QSA. The delivery of the mitigation water was to be by means of exchanges among IID, SDCWA and CVWD consistent with the relevant QSA Agreements, and was intended largely to save the JPA a significant amount of money that could be used for Salton Sea and other mitigation requirements in future years. Not all parties to the QSA litigation agreed that storage of water for future use as mitigation water is proper under the Colorado River Water Delivery Agreement.

IID continues to assert that its 2010 delivery of entitlement water to storage in the Salton Sea, and the subsequent consumptive use of that stored water by IID for QSA mitigation purposes, was an appropriate and prudent response given the status of the QSA litigation at that time. However, in May of 2013 BOR requested a more definite response from IID to address this outstanding issue. While BOR's request was prompted in part by the lack of advancement of the IID/SDCWA joint petition to the SWRCB (see Section III.D regarding the joint petition

status), its more critical concern was the challenging hydrologic conditions facing the Colorado River system as it entered its thirteenth year of a record drought. With 2013 inflow conditions forecasting all-time low snowpack runoff, BOR was concerned that IID's 2010 action could tip the system into shortage conditions earlier than might otherwise occur absent this pre-delivery of Salton Sea mitigation water.

In a June 28, 2013 response letter to BOR, IID reiterated is position that the 2010 pre-delivery of mitigation water to the Salton Sea in 2010 was a necessary, appropriate and lawful exercise of its Colorado River entitlement. IID also recognized the extremely poor Colorado River hydrologic conditions, and with the elevation level of Lake Mead approaching shortage triggers proposed to offset the 2010 pre-delivery of 46,546 AF to the Salton Sea by fallowing for an equivalent volume of conserved water, 69,818 AF, over a two-year period from 2015 to 2016. This fallowing offset will also provide another 23,272 AF of mitigation water delivery to the Salton Sea to revert back to the original mitigation delivery schedule. IID's proposed response actions were premised upon BOR's acknowledgement (although not agreement) of IID's legal position for the 2010 action, and its concurrence that the proposed resolution of this action was not a concession by IID that the pre-delivery was inconsistent with the existing legal framework applicable to deliveries of Colorado River water. Reclamation accepted IID's proposed set of actions and timeline in a July 2, 2013 letter. Letters from various entities on this subject as well as the communications noted above are attached as Appendix 7.

9. Salton Sea Mitigation Water For 2011

In 2010, IID consumptively used Colorado River water by temporarily storing it in the Salton Sea for later use to mitigate QSA impacts on the Salton Sea that require mitigation in 2011 and the first half of 2012. IID's consumptive use in 2010 for this purpose was 46,546 AF,

which was sufficient to meet the 2011 mitigation requirement. No additional water was fallowed or delivered to the Salton Sea for mitigation purposes in 2011.

10. Salton Sea Mitigation Water For 2012

Under the schedule in Appendix 3, 45,000 AF of mitigation water was to be delivered to the Salton Sea. However in 2010, IID consumptively used Colorado River water by temporarily storing it in the Salton Sea for later use to mitigate QSA impacts on the Salton Sea that require mitigation in 2011 and the first half of 2012. In 2012, IID fallowed to create the mitigation water balance of 15,182 AF, and delivered 15,110 AF of this conserved water to the Salton Sea; the 72 AF under-delivery will be corrected in 2013. The remainder of the adjusted 2012 obligation, 19,879 AF, was provided by the 2010 early delivery and storage of entitlement water to the Salton Sea.

Attached as Appendix 4 is a graph identifying Salton Sea elevation changes from January 1, 2003 through December 31, 2012. The changes in elevation are occurring for reasons independent of the Transfer Project, which has been fully mitigated with replacement water, as required.

11. Salton Sea Mitigation Water For 2013

Under the schedule in Appendix 3, 70,000 AF of mitigation water was required to be delivered to the Salton Sea in 2013. IID records indicated 71,470 AF of mitigation water was delivered to the Salton Sea in 2013, an over-delivery of 1,398 AF after adjustment for the 72 AF under-delivery in 2012. The 70,000 AF of required mitigation water was created from fallowing in 2013, while the excess Salton Sea mitigation delivery of 1,398 AF of fallowed water will be considered an early delivery towards the 90,000 AF of mitigation water required in 2014.

C. Air Quality Mitigation

Condition No. 8, p. 87, requires IID to implement the monitoring and mitigation plan for Salton Sea shoreline described on pp. 3-50 to 3-52 of the Final EIR/EIS; to implement best management practices ("BMPs") to mitigate PM10 emissions associated with fallowing, as described in the Final EIR/EIS; to comply with any relevant requirements of the State Implementation Plan for PM10 Emissions ("SIP") or PM10 rules of the Imperial County Air Pollution Control District ("ICAPCD") or the South Coast Air Quality Management District ("SCAQMD"); and to report annually on actions taken to comply.

1. Exposed Salton Sea Shoreline Air Quality Mitigation

The delivery of Salton Sea mitigation water under the approved Alternative Salton Sea Habitat Conservation Strategy continued in 2013. In 2013, IID completed the development of an air quality mitigation program to address potential particulate matter emissions from exposed playa around the lake. The program includes an ongoing monitoring program that was started in 2011/2012 and expanded to a longer range effort as part of the mitigation program. Current meteorological data was combined with the data collected in 2013 from the stations to refine the wind data used in the development of the particulate matter dispersion model. The mitigation program also includes the continued operation of the six station Salton Regional Air Monitoring Network (Salton Sea Network). In 2013 IID assumed temporary responsibility for operation and maintenance of the air station located on Torres-Martinez Desert Cahuilla Tribal lands and coordinated with the South Coast Air Management District (South Coast) to install a gaseous monitor at the site. The gaseous monitor is part of a larger network, managed by South Coast and designed to monitor hydrogen sulfide emissions from the lake.

IID continued its efforts to evaluate various alternative land uses for exposed playa and develop cost efficient dust control measures. Additional dust control pilot projects, to supplement the exiting pilot projects are also included in the program. IID partnered with USFWS for California Financial Assistance Program funding for the Red Hill Bay project and the project was awarded partial funding to complete the design and begin construction. That project will be a proof-of-concept for the development of wildlife habitat and geothermal resources in the same area.

A more detailed description of the implementation of the water transfer air quality mitigation requirements is described in Section 2.4 of the Imperial Irrigation District Water Conservation and Transfer Project Annual Report for In-Valley Permits, for Calendar Year 2013 , attached as Appendix 9.

2. Fallowing-Caused PM10 Emission Mitigation

The implementation of BMPs to minimize PM10 emissions from fallowed lands below the level otherwise caused by farming the land was implemented in 2003 and continued in 2004, 2005, 2006, 2007, 2008, 2009, 2010, 2011, 2012 and 2013.

Exhibit D to the 2013 fallowing contracts provides the following:

> In order to satisfy mitigation and reporting requirements in accordance with the Transfer EIR (defined in Recital B), the Fallowing Party shall be responsible for and comply with the following requirements:
>
> 1. MITIGATION REQUIREMENTS
>
> A. In order to mitigate air quality impacts on Fallow Lands, only the Best Management Practices ("BMPs") recommended by the US Department of Agriculture Natural Resources Conservation Service and listed below will be considered for payment reimbursement. The Dust Control BMP(s) must be selected and approved by IID prior to implementation or July 1, 2011, whichever is earlier. Payment will be based on the

Dust Control BMP Reimbursement Schedule issued annually by the IID.

1) Plan ahead to start with plenty of vegetation residue, and maintain as much residue on fallowed fields as possible. Residue is more effective for wind erosion protection if left standing.

2) Avoid any tillage if possible.

3) Avoid any traffic on the field or tillage when fields are extremely dry to avoid pulverization.

4) If residues are not adequate, small grain can be seeded about the first of the year to take advantage of winter rains or soil stabilization chemicals may be applied to fallowed lands.

B. In addition to the above BMPs, in order to satisfy Imperial County dust control and mitigation requirements, Fallowing Party will comply with any lawful conditions required by the Imperial County Air Pollution Control District.

2. REPORTING REQUIREMENTS

Complete and return a Fallowing Program Mitigation Reporting Form (to be provided by IID) to the Manager of the Water Department of IID on or before July 31, 2012, and update the form before November 30, 2012, and July 31, 2013, verifying the method(s) used to satisfy the mitigation requirements set forth in Section 1 above and the total costs incurred by Fallowing Party therefore, including written documentation evidencing such costs.

The mitigation reporting forms submitted by fallowing participants to IID disclosed that all fallowed fields utilized BMPs as outlined by the U.S. Department of Agriculture Natural Resources Conservation Service. The IID is unaware of any reports of noncompliance or any enforcement activity by the ICAPCD or the SCAQMD with regard to fallowed fields.

The fallowing contracts also condition and limit payments to the Fallowing Party upon compliance with the mitigation requirement. (See Sections 2A and 2B and 12.) A copy of a pro forma 2013 contract between participating farmers and the IID is attached as Appendix 6 and is posted online at http://www.iid.com/Modules/ShowDocument.aspx?documentid=8613.

All 69 fields participating in the first 13-month fallowing program were inspected by IID in January 2004. In July 2004, all 118 of the newly-fallowed fields from the 2004 contracts, as well as the 69 fallowed fields from the 2003 contracts, were inspected by IID. In addition, in October 2004 IID assisted BOR in a verification of fallowed fields utilizing a random 5% acreage spot check.

In January 2005, all 105 of the newly-fallowed fields from the 2005 contracts, as well as the 118 fallowed fields from the 2004 contracts, were inspected by IID. In addition, in October 2005, IID assisted BOR in a verification of fallowed fields utilizing a random 5% acreage spot check.

In 2006, all 169 of the newly-fallowed fields from the 2006 contracts as well as the 105 fallowed fields from the 2005 contracts, were inspected quarterly by IID. In addition, in April and October 2006, IID assisted BOR in a verification of fallowed fields utilizing a random 5% acreage spot check, and BOR validated fallowing compliance.

In 2007, all 150 of the newly-fallowed fields from the 2007 contracts as well as the 169 fallowed fields from the 2006 contracts, were inspected quarterly by IID. In addition, in April and October 2007, IID assisted BOR in a verification of fallowed fields utilizing a random 5% acreage spot check, and BOR validated fallowing compliance.

In 2008, all 133 of the newly-fallowed fields from the 2008 contracts, as well as the 150 fallowed fields from the 2007 contracts, were inspected quarterly by IID. In addition, in April and November 2008, IID assisted BOR in a verification of fallowed fields utilizing a random 5% acreage spot check, and BOR validated compliance.

In 2009, 191 of the newly-fallowed fields from the 2009 contracts, as well as the 133 fallowed fields from the 2008 contracts, were inspected quarterly by IID. In addition, in April

and November 2009, IID assisted BOR in a verification of fallowed fields utilizing a random 5% acreage spot check, and BOR validated compliance.

In 2010, 96 of the newly-fallowed fields from the 2010 contract, as well as the 191 fallowed fields from the 2009-2010/11 contracts, were inspected quarterly by IID. In addition, in April and October 2010, IID assisted BOR in a verification of fallowed fields using a random 5% acreage spot check, and BOR validated compliance.

In 2011, 62 of the newly-fallowed fields from the 2011 contract, as well as the 96 fallowed fields from the 2010-2011 contracts, were inspected quarterly by IID. In addition, in April and October 2011, IID assisted BOR in a verification of fallowed fields using a random 5% acreage spot check, and BOR validated compliance.

In 2012, 355 of the newly-fallowed fields from the 2012 contracts, as well as the 62 fallowed fields from the 2011-2012 contracts, were inspected quarterly by IID. In addition, in April and October 2012, IID assisted BOR in a verification of fallowed fields using a random 5% acreage spot check, and BOR validated compliance.

In 2013, 412 of the newly-fallowed fields from the 2013 contracts, as well as the 355 fallowed fields from the 2012-2013 contracts, were inspected quarterly by IID. In addition, in May and October 2013, IID assisted BOR in a verification of fallowed fields using a random 5% acreage spot check, and BOR validated compliance

3. SIP, ICAPCD and SDCQMD PM10 Mitigation Compliance

The actions required of participating farmers by IID to mitigate air quality impacts caused by fallowing also satisfy and comply with any relevant and applicable requirements for PM10 emissions under the SIP and the rules of the ICAPCD and the SCAQMD. Similarly, the solar projects located on 70 previously farmed agricultural fields identified for fallowing

purposes by IID's Temporary Land Conversion Fallowing Policy also satisfy and comply with any relevant and applicable requirements for PM10 emissions under the SIP and the rules of the ICAPCD and the SCAQMD

D. Lower Colorado River Mitigation

On October 10, 2003, BOR, MWD and SDCWA entered into an agreement whereby SDCWA and MWD shall pay up to a total of $6.236 million in 2003 dollars to BOR, and BOR shall perform all measures required under the USFWS Biological Opinion for the Interim Surplus Criteria, Secretarial Implementation Agreements, and Conservation Measures on the Lower Colorado River, Lake Mead to the Southerly International Boundary Arizona, California and Nevada (January 12, 2001). On November 7, 2003, SDCWA established the account from which BOR may withdraw funds to pay for work in furtherance of satisfying the BO mitigation measures. The Lower Colorado River Conservation Measures have been completed. BOR is monitoring compliance and no new activity is currently contemplated.

E. Tamarisk Scrub Habitat Conservation Strategy

IID continued to implement the two-part preconstruction survey protocol for areas with the potential to contain tamarisk scrub habitat. In 2013, approximately 0.55 acres of tamarisk scrub habitat was impacted by construction. To date the water transfer project has impacted approximately 22 acres of Tamarisk Scrub habitat. No Native Tree habitat was impacted by construction activity in 2013. To date, approximately 2.25 acres of Native Tree habitat has been impacted by Covered Activities.

IID created approximately 17 acres of Native Tree habitat in the buffer areas of the Managed Marsh in October 2009. This habitat is comprised of mesquite (*Prosopis* spp.) and a cover crop of Bermuda grass (*Cynodon* spp.) and/or salt grass (*Distichlis spicata*). The impacted

vegetation communities are mitigated per the permit designated mitigation ratios at the mitigation area at the Managed Marsh. At the end of 2013 approximately 4.9 acres of mitigation credit remain in the habitat mitigation area at the Managed Marsh.

A more detailed description of the Tamarisk Scrub Habitat Conservation Strategy implementation for 2013 is described in Section 2.3.2 of the 2013 Permit Report, attached as Appendix 9.

F. Drain Habitat Conservation Strategy

IID continued with implementation of the various requirements of the Drain Habitat Conservation Strategy. Phase I of the Managed Marsh habitat complex was completed in October 2009. Phase I, located south of Niland, California, is an approximately 365-acre complex of desert riparian, emergent wetland, mesic herbaceous and scrub-shrub bosque habitat. IID also completed the Managed Marsh Adaptive Management Plan ("AMP") and submitted it to the Implementation Team for review. In 2013, IID continued with operation and maintenance of the facility and continued implementation of the monitoring and management guidelines in the AMP.

During the annual monitoring effort at the Managed Marsh, IID identified slightly elevated selenium concentrations in the sediment, tissue and water column samples in cell P1-4. That cell is a 15 acre cell in the southwest corner of the first field of cells (the last cell in that field's cascading water delivery circuit). The selenium levels were not high enough to cause immediate concern; but, IID did additional analysis in an attempt to identify the cause. The initial analysis did not result in any definite information; but a plan to collect and evaluate water column selenium on a quarterly basis was devised to monitor for any potential trends in selenium concentrations. Salinity, hydrogen ion concentration (pH) and turbidity were all within the

parameters identified for the cells and no other issues were identified in the quarterly or annual sampling.

IID continues to monitor wildlife usage at the marsh. Wading birds such as great blue heron (*Ardea herodias wardi*), snowy egret (*Egretta thula candidissima)*, black-crowned night heron (*Nycticorax nycticorax hoactli*) and great egret (*Ardea alba egretta*) were common visitors in 2013. Black-crowned night herons are commonly seen in the P1 cells throughout the year. Occasional visitors also include American white pelicans (*Pelecanus erythrorhynchos*) and California gulls (Larus californicus). Sightings of other fish-eating birds including double-crested cormorants (*Phalacrocorax auritus*), caspian tern (*Hydroprogne caspia)* and Forster's tern (Sterna forsteri) increased in 2013. Western grebe (*Aechmophorus occidentalis*) and eared grebe (*Podiceps nigricollis*) werealso be observed.

Water birds identified in 2013 included, American coot (*Fulica americana*), common moorhen (*Gallinula chloropus cachinnans*) and pied-billed grebe (*Podilymbus podiceps*. Other water birds that were frequently identified included; mallard (*Anas platyrhynchos*), blue-winged teal (*Anas discors*), cinnamon teal (*Anas cyanoptera septentrionalium*), green-winged teal (*Anas crecca carolinensis*), Northern shoveler (*Anas clypeata*) and Northern Pintail (*Anas acuta*). Ruddy duck *(Oxyura jamaicensis rubida)* pairs were observed at the marsh at various times during the year and successful nesting has been documented.

The population and diversity of marsh birds, including some of the more cryptic speciesalso increased in 2013 with American bittern (*Botaurus lentiginosus),* least bittern *(Ixobrychus exilis)* and green heron *(Butorides virescens)* identified on site. Several sightings and vocalizations of Yuma clapper rail (*Rallus longirostris yumanensis*) and Virginia rail (*Rallus limicola*) were also noted in 2013. Passerine birds identified at the marsh in 2013 included

loggerhead shrike (*Lanius ludovicianus*), marsh wren (*Cistothorus palustris aestuarinus*), red-winged blackbird (*Agelaius phoeniceus sonoriensis*), yellow-headed blackbird (*Xanthocephalus xanthocephalus*), Western meadowlark (*Sturnella neglecta*), black phoebe (*Sayornis nigricans semiatra*) and yellow-rumped warbler (*Setophaga coronate*). Unique passerine observations included a Western tanager (*Piranga ludoviciana*) in April, northern rough-winged swallow (*Stelgidopteryx serripennis*) in July and northern flicker (*Colaptes auratus*) in October. Several inactive passerine nests have been observed at the marsh, but no active nesting was identified in 2013.

The migratory/transient raptor population has also increased. While there were no identified instances of nesting raptors at the site in 2013, the number of sightings of raptors foraging at the marsh increased. Northern harriers (*Circus cyaneus hudonius*) were the most commonly observed raptor - other regular raptor sightings included, white-tailed kite (*Elanus leucurus majusculus*), red shouldered hawk (*Buteo lineatus elegans*), red-tailed hawk (*Buteo jamaicensis*), American kestrel (Falco sparverius) and peregrine falcon (*Falco peregrines anatum*). Pellets from a barn owl (*Tyto alba*) and great-horned owl *(Bubo* virginianus) were also observed on several occasions at the marsh; ancillary sightings of both species were reported in 2013. The increase in raptor activity may be in response to the establishment of small mammal habitat in several of the cells and in both buffer areas.

Sightings of small mammals were also recorded during the numerous management and monitoring visits to the site. Coyote (*Canis latrans*), bobcat (*Lynx rufus*) and feral dogs continue to be sighted in various areas of the marsh and tracks were noted throughout the site. Desert cottontail (*Sylvilagus audubons*) have been identified in the western buffer area. Rodent tracks and evidence of burrowing activity has been noted in several areas of the marsh and skunk and

raccoon tracks have been noted in the mesic portions of the P3 cells. Muskrat (*Ondarta zibethicus*) have been sighted in the flooded portions and burrows have been identified in many of the cell berms.

Monitoring at the McKendry Pond site was continued in 2013 to evaluate the condition of the vegetation community and to assess the success of the constructed desert pupfish (*Cyprinodon macularius*) habitat. Cattails continue to dominate portions of the site, but common reed (*Phragmites australis*) and tamarisk (*Tamarix* spp.) are also establishing in portions of the site. Desert pupfish were trapped in the outlet channel of McKendry Pond is 2012; no trapping was conducted at McKendry Pond in 2013. IID continued partnering with CDFW on desert pupfishing trapping as part of the Salton Sea area distribution model and also continued with trapping of direct to Salton Sea drains prior to maintenance activities.

A more detailed description of the Drain Habitat Conservation Strategy implementation for 2012 is described in Section 2.3.3 of the 2012 Permit Report, attached as Appendix 9.

G. Desert Pupfish Conservation Strategy and Selenium Management Study

The refugium was completed in December 2010 and is located at the IID fish hatchery complex north of Villa Road in El Centro, California. The refugium continued in a nonoperational status in 2013 because of a potential Asian tapeworm infestation in the water supply; the California Department of Fish and Wildlife is currently evaluating the issue.

IID completed the four-year United States Geological Survey – Western Fisheries Research Center ("Western Fisheries") water quality in select agricultural drains study, the USGS Columbia Environmental Research Center ("CERC") selenium dosing study, the desert pupfish surrogate species study and the selenium mobility study. Studies to evaluate best management practices for selenium within the drainage system and the Salton Sea are ongoing.

A more detailed description of the Desert Pupfish Conservation Strategy implementation for 2011 is described in Section 2.3.7 of the 2013 Permit Report, attached as Appendix 9. Copies of the various studies and reports noted are available on IID's web page.

H. Razorback Sucker Conservation Strategy

No razorback sucker relocation was required in 2013 as part of the IID Transfer Project. See Section 2.3.8 and related Mitigation Measures of the 2013 Permit Report attached as Appendix 9.

I. Recreation and Aesthetics Mitigation

Reduction in Salton Sea water elevations as a result of the Transfer Project did not occur in 2013 because of the utilization of the Alternate Salton Sea Strategy. Therefore, no relocation of boat launch and access facilities or campgrounds was necessary during 2013.

III. ADDITIONAL INFORMATION

In addition to the information requested by the Order, the IID believes the SWRCB would benefit from receipt and review of the following information:

A. IID QSA and Transfer Public Reporting

In order to keep the public fully informed, the IID initiated a reporting process that includes an annual report and an efficiency conservation progress report. In 2005, IID released its first Quantification Settlement Agreement, Imperial Irrigation District/San Diego County Water Authority Water Conservation and Transfer Agreement Annual Implementation Report 2004 ("IID Annual Implementation Report") that describes IID's annual activities and progress since October 2003 to implement the QSA and conserved water transfers, provides a water accounting, includes a financial accounting, and summarizes environmental mitigation activities. The 2005 IID Annual Implementation Report was released in December 2006. The 2006 IID

Annual Implementation Report was released in October 2007. The 2007 IID Annual Implementation Report was released in November 2008. The 2008 IID Annual Implementation Report was released in November 2009. The 2009 IID Annual Implementation Report was released in March 2011. Due to staffing constraints, the IID Annual Implementation Report has not been prepared since 2009. All IID Annual Implementation Reports are posted on the IID website at http://www.iid.com/index.aspx?page=381, and if the document is published in future years it will be posted at the same website and attached as an appendix in future reports. IID also has extensive information regarding QSA implementation and status reports published on its website at www.iid.com, which can be accessed more directly from a web link entitled "QSA Progress Report" at http://www.iid.com/index.aspx?page=202.

In addition, IID commenced the preparatory work necessary to commence efficiency conservation in 2008 and be fully ramped up and producing 303,000 AFY of efficiency conservation by 2026, as set forth on Appendix 3. The design, analysis and effort to implement such a substantial undertaking is both complex and extensive, and conducted under the rubric Efficiency Conservation Definite Plan ("Definite Plan"). The Definite Plan was completed in May 2007 and accepted by the IID Board of Directors in June 2007. The Definite Plan defined a specific range of efficiency conservation projects to be built, associated costs, and a schedule consistent with the schedule contained in Appendix 3. The Definite Plan also identified near-term actions for implementation of the Efficiency Conservation Program. The near-term actions are underway. To keep the public updated on this effort, the IID has periodically produced and disseminated a newsletter entitled "The QSA & Conserved Water: The Latest News About the Efficiency Conservation Definite Plan," as well as held public workshops. The newsletters, public workshop PowerPoint presentations, and other efficiency conservation planning and

design implementation progress can be found at the IID or Definite Plan websites: http://www.iid.com/index.aspx?page=203.

In 2013, IID began converting from fallowing to efficiency conservation to meet 20,000 AF of its SDCWA transfer obligation. A pilot on-farm efficiency conservation program was initiated to further develop the methodologies conceptualized in the Definite Plan, and staff is working in consultation with a grower advisory board to test and modify this program to meet the district's conservation goals while providing sufficient flexibility and incentives to interest local growers in participating in this voluntary program. The IID Board of Directors also asked staff to refresh the 2007 efficiency conservation recommendations, and refocus planning efforts with an eye towards maximizing the operational benefits of conservation opportunities. Additional engineering analyses were also authorized to quantify the conservation potential of supplemental main canal concrete lining projects and water storage opportunities. In consultation with a grower advisory board, an updated priority list of near-term capital improvement conservation projects was presented to the board in late 2013, with funding authorization anticipated in 2014.

IID commenced construction of the Main Canal Seepage Recovery Project improvement in 2007 and completed it in 2008. Calendar year 2008 conserved water yield was 8,232 AF, which was used to satisfy the 4,000 AF of conserved water transferred to CVWD in 2008 and for IOPP payback obligations. The BOR inspected and verified the creation of conserved water by inspecting and measuring metered water volumes for two randomly selected seepage interceptor pumps in April 2008. Calendar year 2009 efficiency conserved water yield was 21,797 AF, which was used to satisfy 8,000 AF of transfer obligation to CVWD, 1,797 of IOPP payback obligation, and 12,000 of ICS storage. IID's calendar year 2010 efficiency conserved water yield

was 5,950 AF, which was used to partially satisfy the 12,000 AF of transfer obligation to CVWD. The 6,050 AF balance was diverted by CVWD at the Coachella Canal and was paid back to the River by IID using its credit in the ICS account pursuant to the federal ICS and IOPP procedures. IID's calendar year 2011 efficiency conserved water yield approached 27,000 AF, which was used to satisfy the 16,000 AF of transfer obligation to CVWD while the balance was credited to IID's ICS storage account. IID's calendar year 2012 efficiency conservation yielded 31,888 AF, which was used to satisfy the 21,000 AF of transfer obligation to CVWD while the balance was used to pay back IID's 2011 or 2012 overruns. IID's calendar year 2013 efficiency conservation totaled 48,052 AF, 30,776 AF from the Main Canal Seepage Interception project and the 17,276 AF balance from IID's pilot on-farm conservation program. The conserved water from these efficiency-based programs was used to satisfy the 21,000 AF of transfer obligation to CVWD, 20,000 AF of the 100,000 AF transfer obligation to SDCWA, and the remainder will be used to pay back a portion of IID's 2011 or 2012 overruns

B. IID Inventory of Areas Receiving Water

The draft annual crop report and draft acreage and inventory of areas receiving water for 2012 are attached as Appendix 10. This annual survey identifies acreage by crop type, multiple cropped acreage, fallowed acreage, and non-farming acreage receiving water for the calendar years 2010, 2011 and 2012. The information is final for calendar years 2010 and 2011; the information for 2012 is not yet final. IID crop reports can also be accessed directly from http://www.iid.com/index.aspx?page=119.

C. Socioeconomic Impacts of Fallowing

IID and SDCWA disagreed about how socioeconomic impacts are to be determined under the provisions of the IID/SDCWA Transfer Agreement, as amended. Pursuant to the

provisions of their transfer agreement, IID and SDCWA arbitrated the dispute before a private arbitration panel comprised of three retired judges in the Spring of 2007. Resolution by compromise was reached after the completion of the arbitration, but before the arbitration decision was released. The compromise is reflected in a *Settlement Agreement Resolving Present and Future Disputes Under Sections 14.5 and 18.1 of the Revised Fourth Amendment to the IID/SDCWA Conserved Water Transfer Agreement* dated May 7, 2007 (see http://www.iid.com/Modules/ShowDocument.aspx?documentid=884). Payments by SDCWA have been timely made in accordance with the compromise payment schedule. To date, approximately $14.6 million has been distributed by the Local Entity to help mitigate socioeconomic impacts associated with fallowing utilized to create conserved water for SDCWA or to mitigate impacts on the Salton Sea from the conserved water transfer to SDCWA. A process for further identification of impacts and distribution of mitigation payments is underway.

D. QSA Validation Litigation

IID commenced a validation action to validate 13 specific QSA-related contracts which IID had signed. IID did not seek to validate all 35 QSA and Related Agreements, and no other QSA contract party sought to validate any of the other QSA contracts. Other related litigation challenging CEQA compliance was coordinated with the validation action in Sacramento County Superior Court ("Superior Court"). After dismissal of one CEQA action filed by the County of Imperial ("County"), the County sought and obtained a writ staying the validation action for two and one-half years. After the Appellate Court affirmed the dismissal and lifted the stay, the validation action resumed. Trial commenced in November 2009, and concluded in December 2009.

The Superior Court issued a Statement of Decision and judgment which invalidated the Quantification Settlement Agreement Joint Powers Authority Creation and Funding Agreement

("QSA-JPA Agreement") on the sole basis that the contingent contractual commitment of the State of California, by and through the CDFG, to pay for conserved water transfer mitigation costs, if any, above the costs to be paid by IID, SDCWA and CVWD was an unconstitutional violation of Article 16, section 7. The Superior Court invalidated 11 other QSA contracts on the basis that they would not have been entered without a valid QSA-JPA Agreement. The Superior Court dismissed as moot all related CEQA cases, and refused to take jurisdiction over an IID-CVWD flooding settlement agreement.

Appeals were filed by IID, SDCWA, CVWD, MWD, Vista Irrigation District, City of Escondido, and the State of California. Other parties, such as Imperial County and the ICAPCD, filed appeals challenging the CEQA dismissals. The water agencies and State appellants sought a stay of the Superior Court Judgment (or confirmation that an automatic stay was created by the appeal), which was granted. The Appellate Court stay was in effect through the entire appeal. Therefore, because the judgment was not in effect, the QSA continued to be implemented.

A number of entities participated in amicus briefs in support of Appellants (Citizens for a Reliable Water Supply, Defenders of Wildlife, Audubon California, Pacific Institute, Planning and Conservation League, Environment Now) and Respondents (San Luis Rey Indian Water Authority and the United States).

Oral argument on the appeal was heard on November 21, 2011. On December 7, 2011, the Third District Court of Appeal issued a lengthy decision in which it overturned the trial court's invalidity judgment, and remitted the case for trial of the rest of the matter. *Quantification Settlement Agreement Cases* (2011) 201 Cal.App.4th 758.

The main issue in the appeal was whether the State of California's commitment to pay excess mitigation costs, if any, was constitutional. The Court of Appeal ruled that it was and the

Court's detailed constitutional analysis is found on pp. 796-811 of the decision. The Court of Appeal agreed with IID, the State, and the other QSA parties that nothing in the contract made funds actually exit the State treasury without an appropriation. The State, if the contingent payment need arises, has a contractual obligation to pay. If it does not pay it will be in breach of contract, which will give the other QSA parties the remedy of acquiring a judgment. The judgment, as with all debts against the State, is only paid only when there is an appropriation (or, if there was one already in existence for the purpose, then by enforcement against that fund). The State's obligation is unconditional, but whether it actually will ever have to pay is contingent on future facts as to what mitigation costs are.

Numerous losing parties sought rehearing from the Court of Appeal, which that court denied. Petitions for review were then filed with the California Supreme Court by Imperial County, Cuatro Del Mar, POWER and the Morgan/Holtz parties. On March 14, 2012, the California Supreme Court denied review. In addition, Cuatro Del Mar filed a Petition for a Writ of Certiorari with the U.S. Supreme Court, which was denied on October 1, 2012.

The QSA cases were returned to the Sacramento Superior Court for trial of remaining issues. That trial took place in November 2012. On February 13, 2013, the court issued an order vacating submission and requesting additional briefing due on February 23, 2013, which was later extended to March 5, 2013 as requested by Cuatro Del Mar and approved by a court order issued on February 19, 2013. Also on February 19, 2013, IID filed a motion to request a 90-day stay of the pending trial court ruling, to allow IID an opportunity to engage in settlement negotiations with all parties involved in the QSA cases for global settlement. On March 6, 2013, the court issued an order staying the issuance of his decision until the end of the 90-day resubmission period provided to the court for the issuance of a decision, which was June 5, 2013. The order issued on March 6, 2013 granting the stay also stated that the court would reject any settlement presented to it which does not

resolve all issues, including the ultimate issue of validation, and would instead issue a decision which adjudicates all issues pending. On June 4, 2013, the trial court issued a proposed statement of decision validating the QSA and Related Agreements being challenged and rejected all of the remaining legal challenges to the agreements. After considering all objections filed regarding the proposed statement of decision, the court determined that no further briefing or hearing was necessary and the court issued the final statement of decision on July 31, 2013, including final judgments for the 3 remaining QSA cases, which again validated the QSA and Related Agreements being challenged and rejected all of the remaining legal challenges to the agreements.

As a result of the final judgments in favor of the QSA parties, IID and most of the other QSA parties filed memoranda of costs in the three remaining QSA cases. Additionally, two motions for attorney fees were filed. One motion was filed by the Morgan/Holtz parties against all of the QSA parties and the other motion was filed by SDCWA against the County and Imperial County Air Pollution Control District. On March 3, 2014, the court issued a tentative ruling regarding the motions to strike and tax costs and the motions for attorney fees. The tentative ruling granted some portions of the motions to strike and tax costs. The tentative ruling also granted SDCWA's motion for attorney fees and denied the Morgan/Holtz parties' attorney fees motion. A motion hearing was held on March 4, 2014 allowing the parties to respond to the tentative ruling. The court took the matter under submission and a final ruling regarding costs and attorney fees is pending.

The trial court's July 31, 2013 final statement of decision was appealed by Cuatro Del Mar, POWER, the Barioni parties, the County and the Imperial County Air Pollution Control District. The only party that did not file a notice of appeal was the Morgan/Holtz parties. Briefing in the appellate case is underway. No hearing on the matter will be scheduled until all briefing is completed. It is anticipated that the appellate hearing will occur in 2014.

Related to the QSA water transfers, but not part of the specific QSA litigation, IID and SDCWA in 2011 filed a petition to modify the SWRCB's earlier Revised Order WRO 2002-0013. In that petition IID and SDCWA asked the SWRCB to approve certain mitigation measures and changes in the timing of transfer of conserved water. The main request was to allow the parties to use their mitigation funds to create conservation habitat that will support Salton Sea fish and wildlife species well beyond 2017 instead of sending mitigation water to the Salton Sea for years 2014-2017. However, IID has since determined that sending mitigation water to the Salton Sea for years 2014-2017 is necessary and imperative in order for the Salton Sea to be unaffected during these years while restoration efforts by the State are pursued, which are supported by IID's own efforts under its Salton Sea Restoration and Renewable Energy Initiative. As a result, the environmental assessment for the proposed modifications to Revised Order WRO 2002-2013 is no longer underway and will not continue forward . IID and SDCWA are in discussions about next steps regarding the petition to modify Revised Order WRO 2002-0013. Nevertheless, IID remains focused and committed to moving forward with the State in pursuit of Salton Sea restoration.

IV. CONCLUSION

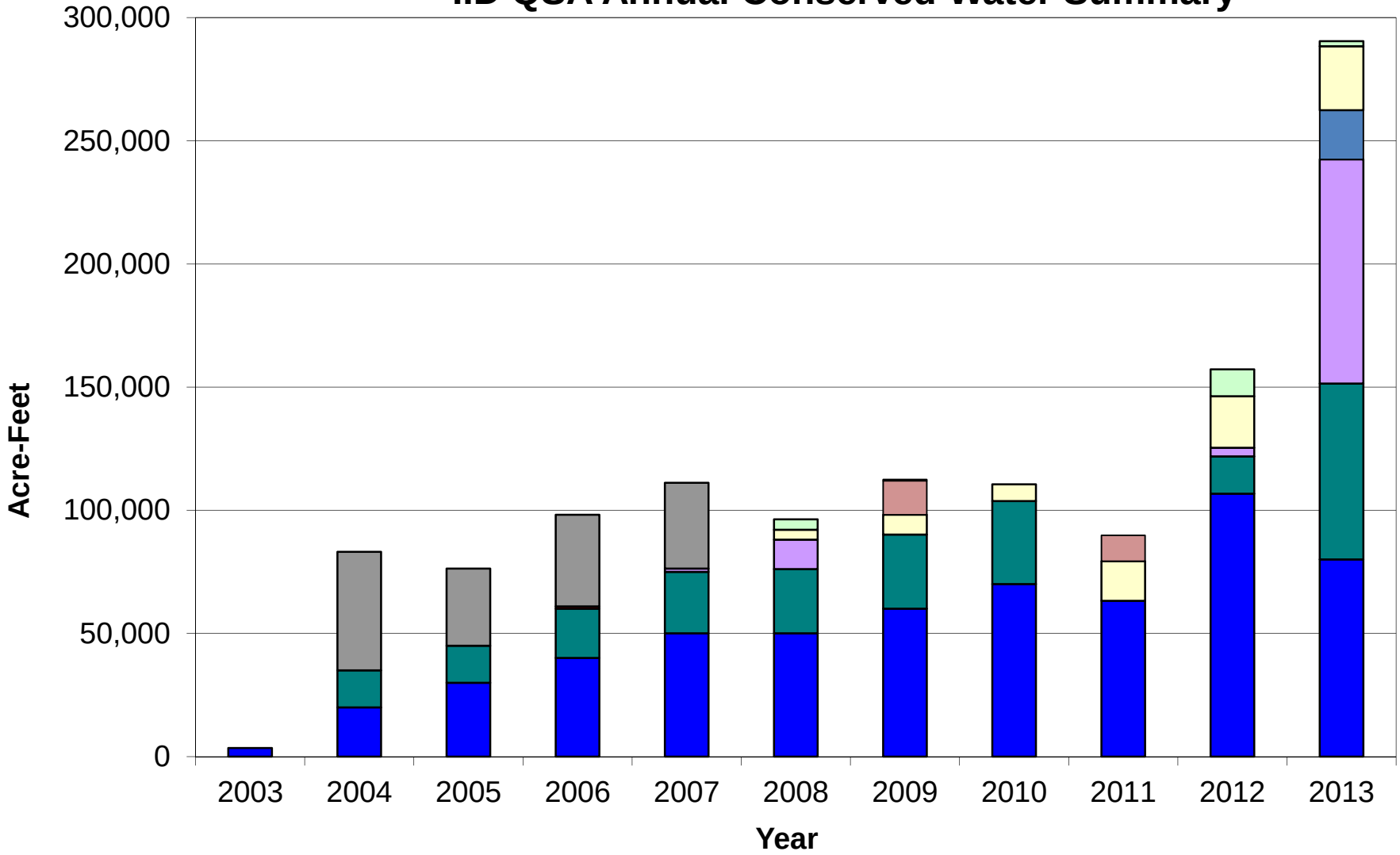
This 2012 Annual Report is based on the information available to the IID at the time of its preparation. IID staff and consultants are available to answer any questions that the Chief of the Division of Water Rights may have. For further information, please contact the following:

Tina Anderholt Shields, P.E.
Imperial Irrigation District
Colorado River Resources Manager
P.O. Box 937
Imperial, CA 92251
(760) 339-9038 (phone)
tlshields@iid.com

APPENDIX 1

Annual IID WSA Water Accounting Report for 2013
(Corrected 4-2-14)

IID QSA Annual Conserved Water Summary



- SDCWA Fallowing
- CVWD Fallowing
- SS Mitigation Fallowing
- ICS Fallowing
- IOPP Fallowing
- Exhibit C Fallowing
- SDCWA Efficiency
- CVWD Efficiency
- ICS Efficiency
- IOPP Efficiency
- Groundwater Storage

Notes:
1) 2004, 2005 and 2006 Exhibit C Fallowing include 9,339 AF of Colorado River Reregulation Conservation and storage and 1,375 AF reduction for loss agreement.
2) 2009 IOPP Efficiency includes 1,797 AF of unused fallowed water left in Colorado River System.
3) In 2011 and 2012, water created for ICS or IOPP purposes was used to reduce that years' overrun.

2013 IID Water Use

(All Values are Consumptive Use Volumes in Acre Feet at Imperial Dam)

	CONSUMPTIVE USE	FALLOWING	EFFICIENCY	SALTON SEA DELIVERY	LAKE MEAD DELIVERY	CVWD GROUNDWATER EXCHANGE
Misc PPR[1]	11,030					
1988 IID/MWD Transfer	105,000					
SDCWA Transfer	100,000	80,000	20,000			
CVWD Transfer	26,000		26,000			
SD Transfer Salton Sea Mitigation[2]	71,398	71,398		71,470	-72	
Inadvertent Overrun Payback	55,710	55,710				
Intentionally Created Surplus	0					
AAC Lining Project Transfer	67,700					
IID Water Use[3]	2,554,854					
LCWSP Wellfield Pumpage	5,510					
IID Additional Conserved Water & Storage[4]	37,347	35,295	2,052			
TOTAL	3,034,549	242,403	48,052			
IID QSA Entitlement	3,100,000					
Early Payback Applied to 2012 Overrun	37,347					
2013 Underrun	-65,451					

Notes:

1) 470 Misc PPR credit

2) Excess fallow and delivery of 1,398AF (1,470 AF adjusted for 2012 underdelivery of 72AF). See Salton Sea Mitigation Accounting for details.

3) USBR reported value as per Provisional Decree Accounting records dated 02/05/2014; included as part of IID's CU in lieu of an equivalent diversion.

4) 37,347 AF intended for early IOPP payback.

2012 IID Water Use

(All Values are Consumptive Use Volumes in Acre Feet at Imperial Dam)

	CONSUMPTIVE USE	FALLOWING	EFFICIENCY	SALTON SEA DELIVERY	LAKE MEAD DELIVERY	CVWD GROUNDWATER EXCHANGE
Misc PPR	11,500					
1988 IID/MWD Transfer[1]	104,140					
SDCWA Transfer[2]	106,722	106,722				
CVWD Transfer	21,000		21,000			
SD Transfer Salton Sea Mitigation[4]	15,182	15,182		15,110	72[3]	
Inadvertent Overrun Payback[5]	0				5,842	448
Intentionally Created Surplus	0					
AAC Lining Project Transfer	67,700					
IID Water Use[6]	2,903,216					
LCWSP Wellfield Pumpage	4,616					
IID Additional Conserved Water & Storage[7]	14,299	3,411	10,888			
TOTAL	3,248,375	125,315	31,888	15,110	5,914	448
IID QSA Entitlement	3,100,000					
Amount Exceeding Approved Water Order Reported by USBR	148,375					
2012 Planned ICS; Applied to 2012 Overrun	14,299	3,411	10,888			
2012 Overrun	134,076					
EOY Overrun Account Balance Reported by USBR[8]	134,076					

Notes:

1) Reduced as per Agreement due to reduction in number of required Tailwater Return Systems.

2) Due to the risk associated with QSA litigation, IID was able to create only 63,278 AF of the required 80,000 AF by fallowing in calendar year 2011. The balance of 16,722 AF of fallowed water, while under contract in the 2011-2012 Fallowing Program, was conserved in calendar year 2012. While IID considers the 16,722 AF to have been transferred by utilization of IID's IOPP right in calendar year 2011, to satisfy accounting deadlines, IID agreed to transfer 106,722 AF of conserved water instead of 90,000 AF in calendar year 2012; however IID reserves its position regarding the utilization of its IOPP right for transfer shortfalls.

3) In 2012, IID conserved 15,182 AF of Colorado River water for Salton Sea mitigation purposes, but delivered 15,110 AF to the Sea. This resulted in a 72 AF under-delivery. In 2013, IID will increase deliveries to the Salton Sea by 72 AF.

4) Remaining Salton Sea Mitigation balance of 19,879 AF from carryover of 2010 early mitigation water delivery - See SS Mitigation Accounting for details.

5) 5,842 AF from ICS and 448 AF from CVWD groundwater storage (see 2010 IID Water Use footnote 4) used as early IOPP payback for 2011 overrun - See IOPP Accounting and Provisional Lake Mead Accounting for details.

6) USBR reported value as per Provisional Decree Accounting records dated 02/13/2013; included as part of IID's CU in lieu of an equivalent diversion.

7) 14,299 AF created for IOPP purposes but due to policy limitations in overrun years, was used instead to reduce current year's overrun.

8) USBR reported overrun as per Final Decree Report records dated May 2013.

2011 IID Water Use

(All Values are Consumptive Use Volumes in Acre Feet at Imperial Dam)

	CONSUMPTIVE USE	FALLOWING	EFFICIENCY	SALTON SEA DELIVERY	LAKE MEAD DELIVERY
Misc PPR	11,500				
1988 IID/MWD Transfer[1]	103,940				
SDCWA Transfer[2]	63,278	63,278			
CVWD Transfer	16,000		16,000		
SD Transfer Salton Sea Mitigation[3]	0				
Inadvertent Overrun Payback	0				
Intentionally Created Surplus	0				
AAC Lining Project Transfer	67,700				
IID Water Use[4]	2,915,784				
LCWSP Wellfield Pumpage	4,460				
IID Additional Conserved Water & Storage[5]	10,528		10,528		
TOTAL	3,193,190	63,278	26,528	0	0
IID QSA Entitlement	3,100,000				
Amount Exceeding Approved Water Order Reported by USBR	93,190				
2011 Planned ICS; Applied to 2011 Overrun	10,528				
2011 Overrun	82,662				
EOY Overrun Account Balance Reported by USBR[6]	82,662				

Notes:

1) Reduced as per Agreement due to reduction in number of required Tailwater Return Systems.

2) Due to the risk associated with QSA litigation, IID was able to create only 63,278 AF of the required 80,000 AF by fallowing in calendar year 2011. The balance of 16,722 AF of fallowed water, while under contract in the 2011-2012 Fallowing Program, was conserved in calendar year 2012. While IID considers the 16,722 AF to have been transferred by utilization of IID's IOPP right in calendar year 2011, to satisfy accounting deadlines, IID agreed to transfer 106,722 AF of conserved water instead of 90,000 AF in calendar year 2012; however IID reserves its position regarding the utilization of its IOPP right for transfer shortfalls.

3) Salton Sea Mitigation obligation of 40,000 AF from carryover of previous years deliveries - See SS Mitigation Accounting for details.

4) USBR reported value as per final Decree Accounting records dated May 2012; included as part of IID's CU in lieu of an equivalent diversion.

5) 10,528 AF created for ICS purposes but due to policy limitations in overrun years, was used instead to reduce current year's overrun.

6) USBR reported overrun as per final Decree Accounting records dated May 2012. Does not include IID's 16,722 AF conservation shortfall for SDCWA, which was transferred by use of IOPP. USBR has not yet made a final determination regarding this issue.

2010 IID Water Use

(All Values are Consumptive Use Volumes in Acre Feet at Imperial Dam)

	CONSUMPTIVE USE	FALLOWING	EFFICIENCY	SALTON SEA DELIVERY	LAKE MEAD DELIVERY
Misc PPR	11,500				
88 Agreement	105,000				
San Diego Transfer	70,000	70,000			
Coachella Valley Water District	12,000		6,809[1]		
SD Transfer Salton Sea Mitigation	33,736	33,761		33,736[2]	25[3]
Inadvertent Overrun Payback	0				
Intentionally Created Surplus	0				
AAC Lining	67,700				
IID Water Users[4]	2,545,593				
IID Storage	46,546			46,546[5]	
TOTAL	2,892,075	103,761	6,809	80,282	25
IID Water Order	3,100,000				
Inadvertent Overrun Reported by USBR					
Underrun	207,925				

Notes:

1) IID was able to create only 6,809 AF of the required 12,000 AF by efficiency conservation due to Main Canals Seepage System pump outage problems; 5,191 AF delivered from IID's ICS account - See ICS Accounting.

2) Accounts for carryover Salton Sea Mitigation from previous years - See SS Accounting for Details.

3) Difference between 2009 SS mitigation delivery requirement and actual delivered and fallowed amount - See Mead Accounting for Details.

4) Reported IID C.U. from Colo. River by USBR (final decree accounting published May 2011), adjusted for 5,104 AF pumped from the LCWSP and includes 526 AF delivered to Coachella Canal heading for groundwater storage.

5) Storage in Salton Sea for 2011 and one half of 2012 mitigation obligation.

2009 IID Water Use

(All Values are Consumptive Use Volumes in Acre Feet at Imperial Dam)

	CONSUMPTIVE USE	FALLOWING	EFFICIENCY	SALTON SEA DELIVERY	LAKE MEAD DELIVERY
Misc PPR	11,126				
88 Agreement	105,000				
San Diego Transfer	60,000	60,000			
Coachella Valley Water District	8,000		8,000		
SD Transfer Salton Sea Mitigation	30,158	30,133		30,158	-25[1]
Inadvertent Overrun Payback	0				
Intentionally Created Surplus	12,000		13,797		12,000[2]
AAC Lining[3]	65,577				
IID Water Users (Reported by USBR)	2,566,713				
LCRWSP Wellfield Pumpage	3,684				
TOTAL	2,862,258	90,133	21,797	30,158	11,975
IID Water Order	3,100,000				
Inadvertent Overrun Reported by USBR	-				
Underrun Reported by USBR	237,767				

Notes: 1) Carried over to next year.

2) According to ICS policy, IID limited to 12,000 AF per year from seepage interception pumps-1,797 AF created by seepage interception unused and left in Colorado River system.

3) 2009 conservation yield for Reaches 1, 2, and 3 based on the Secretary of Interior's Oct. 27, 2009 Interim Determination and are 48,727 AF, 14,700 AF and 2,150 AF respectively.

2008 IID Water Use

(All Values are Consumptive Use Volumes in Acre Feet at Imperial Dam)

	CONSUMPTIVE USE	FALLOWING	EFFICIENCY	SALTON SEA DELIVERY	LAKE MEAD DELIVERY
Misc PPR	11,500				
88 Agreement	105,000				
San Diego Transfer	50,000	50,000			
Coachella Valley Water District	4,000		4,000		
SD Transfer Salton Sea Mitigation	26,085	26,085		26,085	
Inadvertent Overrun Payback	16,197	11,965	4,232		16,197
Intentionally Created Surplus	0				
AAC Lining	8,898				
IID Water Users (Reported by USBR)	2,825,116				
LCRWSP Wellfield Pumpage	7,350				
MWD diversion of IID early payback per settlement	-2,145				
TOTAL	3,052,001	88,050	8,232	26,085	16,176
IID Water Order	3,100,000				
Inadvertent Overrun Reported by USBR	-				
Underrun Reported by USBR	47,999				

Notes:

2007 IID Water Use

(All Values are Consumptive Use Volumes in Acre Feet at Imperial Dam)

	CONSUMPTIVE USE	FALLOWING	EFFICIENCY	SALTON SEA DELIVERY	LAKE MEAD DELIVERY
Misc PPR	11,500				
88 Agreement	105,000				
San Diego Transfer	50,000	50,000			
SD Transfer Salton Sea Mitigation	25,021	25,021		23,306	2,356[1]
CRWDA Exhibit C Payback	18,900	18,900			18,900
Early CRWDA Exhibit C Payback	15,931	15,931			15,931
Intentionally Created Surplus	0				
Inadvertent Overrun Payback	1,263	1,263			1,263
IID CU (Reported by USBR)	2,872,754				
LCRWSP Wellfield Pumpage	5,989				
TOTAL	3,106,358	111,115	0	23,306	38,450
IID Water Order	3,100,000				
Inadvertent Overrun Reported by USBR	6,358				
Underrun Reported by USBR	-				

Notes: 1) 1,715 AF from fallowing and 641 AF credit from 2004 - See Lake Mead Accounting

2006 IID Water Use

(All Values are Consumptive Use Volumes in Acre Feet at Imperial Dam)

	CONSUMPTIVE USE	FALLOWING	EFFICIENCY	SALTON SEA DELIVERY	LAKE MEAD DELIVERY
Misc PPR	11,500				
88 Agreement	101,160				
San Diego Transfer	40,000	40,000			
SD Transfer Salton Sea Mitigation	20,000	20,000			20,000[1]
CRWDA Exhibit C Payback	18,900	18,900			18,900
Early CRWDA Exhibit C Payback	18,719	18,719			18,719
IOPP	0				1,000
ICS	1,000	1,000			0
IID CU (Reported by USBR)	2,909,680				
LCRWSP Wellfield Pumpage	1,412				
Adjustments (USBR 2003-2006 Canal Loss, II B (6), ICS)	-13,414				
TOTAL	3,108,957	98,619	0	0	58,619
IID Water Order	3,100,000				
Inadvertent Overrun Reported by USBR	8,957				
Underrun Reported by USBR	-				

Notes: 1) Restoration of 2004 and 2005 reregulation conservation to Colo. River from Salton Sea.

2005 IID Water Use

(All Values are Consumptive Use Volumes in Acre Feet at Imperial Dam)

	CONSUMPTIVE USE	FALLOWING	EFFICIENCY	SALTON SEA DELIVERY	LAKE MEAD DELIVERY
Misc PPR	11,500				
88 Agreement	101,940				
San Diego Transfer	30,000	30,000			
SD Transfer Salton Sea Mitigation	15,000	15,000			15,000[2]
CRWDA Exhibit C Payback	18,900	18,900			18,900
Early CRWDA Exhibit C Payback	7,305	7,305			7,305
IOPP	0				
Colo. River Reregulation Conservation & Storage in SS[1]				21,476	
IID CU (Reported by USBR)	2,756,846				
LCRWSP Wellfield Pumpage	1,036				
TOTAL	2,942,527	71,205	0	21,476	41,205
IID Water Order	3,100,000				
Inadvertent Overrun Reported by USBR	-				
Underrun Reported by USBR[3]	159,881				

Notes: 1) Per Agreement, IID is credited with 25% of Colo. River reregulation water stored in Salton Sea as a reduction to Exhibit C payback.

2) Restoration of 2004 reregulation conservation to Colo. River from Salton Sea.

3) Does not include canal loss adjustment per 2006 IID/USBR Agreement

2004 IID Water Use

(All Values are Consumptive Use Volumes in Acre Feet at Imperial Dam)

	CONSUMPTIVE USE	FALLOWING	EFFICIENCY	SALTON SEA DELIVERY	LAKE MEAD DELIVERY
Misc PPR	11,500				
88 Agreement	101,900				
San Diego Transfer	20,000	20,000			
SD Transfer Salton Sea Mitigation	15,000	15,000		14,359	641
CRWDA Exhibit C Payback	18,900	18,900			18,900
Early CRWDA Exhibit C Payback	25,881	25,881			25,881
IOPP					
Colo. River Reregulation Conservation & Storage in SS[1]				15,880	
IID CU (Reported by USBR)	2,743,909				
LCRWSP Wellfield Pumpage	1,259				
TOTAL	2,938,349	79,781	0	30,239	45,422
IID Water Order	3,100,000				
Inadvertent Overrun Reported by USBR	-				
Underrun Reported by USBR[2]	166,408				

Notes: 1) Per Agreement, IID is credited with 25% of Colo. River reregulation water stored in Salton Sea as a reduction to Exhibit C payback.

2) Does not include canal loss adjustment per 2006 IID/USBR Agreement.

2003 IID Water Use

(All Values are Consumptive Use Volumes in Acre Feet at Imperial Dam)

	CONSUMPTIVE USE	FALLOWING	EFFICIENCY	SALTON SEA DELIVERY	LAKE MEAD DELIVERY
Misc PPR	11,500				
88 Agreement	105,130				
San Diego Transfer	10,000	3,445			
SD Transfer Salton Sea Mitigation[2]	5,000				
CRWDA Exhibit C Payback	0				
Early CRWDA Exhibit C Payback	0				
IOPP					
IID CU (Reported by USBR)[1]	2,978,223				
LCRWSP Wellfield Pumpage	1,249				
TOTAL	3,111,102	3,445	0	0	0
IID Water Order	3,100,000				
Inadvertent Overrun Reported by USBR[2]	6,555				
Underrun Reported by USBR	-				

Note: 1) Does not include canal loss adjustment per 2006 IID/USBR Agreement.

2) Since the QSA was executed in October of 2003, IID was able to only fallow 3,445 AF and therefore had an inadvertent overrun of 6,555 AF which was used to satisfy IID's 10,000 AF obligation to SDCWA. The USBR waived payback for 2003 overruns for all Lower Basin contractors as the IOPP did not take effect until January 1, 2011.

SDCWA TRANSFER ACCOUNTING

(All Values are Consumptive Use Volumes in Acre Feet at Imperial Dam)

YEAR	OBLIGATION	ANNUAL VOLUMES[1]			ANNUAL OVER/UNDER OBLIGATION
		FALLOWING	EFFICIENCY	TOTAL VOLUME[2]	
2003[3]	10,000	3,445	0	3,445	-6,555
2004	20,000	20,000	0	20,000	0
2005	30,000	30,000	0	30,000	0
2006	40,000	40,000	0	40,000	0
2007	50,000	50,000	0	50,000	0
2008	50,000	50,000	0	50,000	0
2009	60,000	60,000	0	60,000	0
2010	70,000	70,000	0	70,000	0
2011[4]	80,000	63,278	0	63,278	-16,722
2012[4]	90,000	106,722	0	106,722	16,722
2013	100,000	80,000	20,000	100,000	0
2014	100,000				
2015	100,000				
2016	100,000				
2017	100,000				
TOTAL	1,000,000	573,445	20,000	593,445	

Notes:

1) From Applicable Year

2) Any difference in total volume compared to IID transfer obligation is satisfied by IID utilization of its IOPP right.

3) Since the QSA was executed in October of 2003, IID was only able to fallow 3,445 AF and therefore had an inadvertent overrun of 6,555 AF which was used to satisfy IID's 10,000 AF obligation to SDCWA. The USBR waived payback for 2003 overruns for all Lower Basin entities.

4) Due to the risk associated with QSA litigation, IID was able to create only 63,278 AF of the required 80,000 AF by fallowing in calendar year 2011. The balance of 16,722 AF of fallowed water, while under contract in the 2011-2012 Fallowing Program, was conserved in calendar year 2012. While IID considers the 16,722 AF to have been transferred by utilization of IID's IOPP right in calendar year 2011, to satisfy accounting deadlines, IID agreed to transfer 106,722 AF of conserved water instead of 90,000 AF in calendar year 2012; however IID reserves its position regarding the utilization of its IOPP right for transfer shortfalls.

CVWD TRANSFER ACCOUNTING

(All Values are Consumptive Use Volumes in Acre Feet at Imperial Dam)

YEAR	OBLIGATION	ANNUAL VOLUMES[1]			ANNUAL OVER/UNDER OBLIGATION
		FALLOWING	EFFICIENCY	TOTAL VOLUME[2]	
2003	0	0	0	0	0
2004	0	0	0	0	0
2005	0	0	0	0	0
2006	0	0	0	0	0
2007	0	0	0	0	0
2008	4,000	0	4,000	4,000	0
2009	8,000	0	8,000	8,000	0
2010	12,000	0	12,000[3]	12,000	0
2011	16,000	0	16,000	16,000	0
2012	21,000	0	21,000	21,000	0
2013	26,000	0	26,000	26,000	0
2014	31,000				
2015	36,000				
2016	41,000				
2017	45,000				
TOTAL	240,000	0	87,000	87,000	

Notes:

1) From Applicable Year.

2) Any difference in total volume compared to IID transfer obligation is satisfied by IID use of an IOPP overrun.

3) 6,809 AF created by Main Canal Seepage Interception Project and 5,191 AF delivered from IID's ICS account - See ICS Accounting.

SALTON SEA MITIGATION ACCOUNTING

(All Values are Consumptive Use Volumes in Acre Feet at Imperial Dam)

YEAR	OBLIGATION			DELIVERY TO SEA				INFLOW/OUTFLOW ACCOUNTING	
	FALLOW	FALLOW (revised)	ENTITLEMENT	ANNUAL VOLUMES[1]			REMAINING OBLIGATION BALANCE	ANNUAL OVER/UNDER OBLIGATION	RUNNING BALANCE IN SALTON SEA
				DELIVERY TO SEA	CR REREG CONSERVATION & STORAGE	TOTAL VOLUME			
2003[2]	5,000			0	0	0	730,182	-5,000	-5,000
2004	10,000			14,359	15,880	30,239	699,943	20,239	15,239
2005	15,000			0	21,476	21,476	678,467	6,476	21,715
2006	20,000			0	0	0	678,467	-20,000	1,715
2007	25,000			23,306	0	23,306	655,161	-1,694	21
2008	25,000			26,085	0	26,085	629,076	1,085	1,106
2009	30,000			30,158	0	30,158	598,918	158	1,264
2010[3]	35,000			80,282	0	80,282	518,636	45,282	46,546
2011[4]	~~40,000~~	0	26,667	0	0	0	518,636	-26,667	19,879
2012[5]	~~45,000~~	15,182	19,879	15,110	0	15,110	503,526	-19,951	-72
2013	~~70,000~~	71,398		71,470	0	71,470	432,056	72	0
2014	~~90,000~~	88,602							
2015	110,000								
2016	130,000								
2017	150,000								
TOTAL[6]	730,182		46,546	260,770	37,356	298,126			

Notes:

1) From Applicable Year

2) Since the QSA was executed in October of 2003, SWRCB approved the 2003 obligation being satisfied in 2004.

3) 46,521 AF of IID's entitlement water was delivered to the Salton Sea for storage as early mitigation water in 2010 for the scheduled obligations of 2011 and half of 2012.

4) IID delivered entitlement water to the Salton Sea in 2010 for storage to be used for future mitigation. When entitlement water is used to mitigate transferred water created by fallowing, the transferred volume is multiplied by 1/3 to determine the entitlement water mitigation volume (i.e., 80,000 AF x .33 = 26,667 AF).

5) 19,879 AF of entitlement water (see footnote 4) accounted for 66.3% of the 2012 Salton Sea obligation. The remaining 33.7% of the 2012 Salton Sea obligation totaled 15,182 AF from fallowing.

6) Due to use of entitlement water, adjustments have been made to the total obligation.

CRWDA EXHIBIT C ACCOUNTING

(All Values are Consumptive Use in Acre Feet at Imperial Dam)

YEAR	OBLIGATION	PAYBACK					EXHIBIT C DELIVERY DIFFERENCE (Early Payback)		ADJUSTED EXHIBIT C OBLIGATION
		ANNUAL VOLUMES[1]				REMAINING BALANCE	ANNUAL OVER/UNDER OBLIGATION	RUNNING BALANCE	
		FALLOWING	Adjustment for USBR/IID 2007 Canal Loss Compromise Agreement	CR REREG CONSERVATION & STORAGE[2]	TOTAL VOLUME				
2003	0	0		0	0	151,400	0	0	0
2004	18,900	44,781	-602	3,970	48,149	103,251	29,249	29,249	0
2005	18,900	26,205	-308	5,369	31,266	71,985	12,366	41,615	0
2006	18,900	37,619	-465	0	37,154	34,831	18,254	59,869	0
2007	18,900	34,831	0	0	34,831	0[3]	15,931	75,800	0
2008	18,900	0	0	0	0	0			0
2009	18,900	0	0	0	0	0			0
2010	19,000	0	0	0	0	0			0
2011	19,000	0	0	0	0	0			0
TOTAL	151,400	143,436	-1,375	9,339	151,400	0			

Notes:
1) From Applicable Year
2) Per Agreement, IID is credited with 25% of Colo. River reregulation water stored in Salton Sea as a reduction to Exhibit C payback.
3) Total obligation of 151,400 AF completed four years early in 2007.

CVWD Groundwater Storage

(All Values are in Consumptive Use in Acre Feet at Imperial Dam)

Year	IID Water Delivered to CVWD MP 0.2 Turnout (AF)	5% Canal Conveyance Losses (AF)	5% Storage Losses (AF)	Amount Withdrawn	Net IID Water Stored as of Jan 1 following year (AF)
2003	0	0	0	0	0
2004	0	0	0	0	0
2005	0	0	0	0	0
2006	0	0	0	0	0
2007	0	0	0	0	0
2008	0	0	0	0	0
2009	0	0	0	0	0
2010	525	25	6	0	494
2011	0	0	25	0	469
2012	0	0	21	448	0
2013	0	0	0	0	0
2014					
2015					
2016					
2017					
TOTAL	525	25	52	448	

Notes:

IOPP ACCOUNTING

(All Values are in Consumptive Use in Acre Feet at Imperial Dam)

Cal. Yr.	Inadvertent Overrun	Other Applied to IOP	ICS Applied to IOP	Fallowed Amount Applied to IOP	System Efficiency Applied to IOP	Cumulative Remaining Inadvertent Overrun Balance	Amount Delivered to Storage	Cumulative Overrun Amount Carried Forward in System
2003								
2004								
2005								
2006	18,914	8,957[1]	1,000			8,957	0	8,957
2007	6,358	0	0	1,263	0	14,052	0	14,052
2008	0	0	0	11,965	4,232	-2,145[2]	0	0
2009	0	0	0	0	0	0	0	0
2010	5,191[3]	0	5,191	0	0	0	0	0
2011[4]	82,662	0	0	0	0	82,662	0	82,662
2012[5]	134,076	448	5,842	0	0	210,448	0	210,448
2013	0	0	0	91,005	2,052	117,391	0	117,391
2014								
2015								
2016								
2017								
TOTAL	247,201	9,405	12,033	104,233	6,284		0	

Notes:

1) II B (6) Applied to IOP

2) MWD diversion of IID early payback per settlement

3) IID was able to create only 6,809 AF of the required 12,000 AF by efficiency conservation due to Main Canals Seepage Interception Project pump outage problems; balance was delivered from IID's ICS account.

4) USBR reported overrun as 82,662 AF, which does not include the conservation shortfall of 16,722 AF that was delivered using the IOPP. USBR has not yet made a final determination regarding the final accounting of this issue.

5) 5,842 AF from ICS and 448 AF from CVWD groundwater storage (See 2010 IID Water Use footnote 4) applied as 2011 overrun early payback, reducing the balance to 76,372 AF (See IID's letter to USBR dated 12/27/2012).

ICS ACCOUNTING

(All Values are in Consumptive Use in Acre Feet at Imperial Dam)

Cal. Yr.	Fallowed Amount to ICS	Seepage Interception to ICS	Other System Conservation to ICS	Other On-Farm Efficiency Conservation to ICS	Total to ICS	Lake Mead Introduction Loss for Mead (5%)	Total Adjusted to ICS	Amount Withdrawn	Annual Carry Over Loss (3%)	Year End Balance
2003										
2004										
2005										
2006[1]	1,000	0	0	0	1,000	0[1]	1,000	1,000	0	0
2007	0	0	0	0	0	0	0	0	0	0
2008	0	0	0	0	0	0	0	0	0	0
2009	0	13,797[2]	0	0	12,000	600	11,400	0	0	11,400
2010	0	0	0	0	0	0	0	5,191[3]	186	6,023
2011[4]	0	10,528	0	0	0	0	0	0	181	5,842
2012[5]	0	14,299	0	0	0	0	0	5,842[6]	0	0
2013	0	0	0	0	0	0	0	0	0	0
2014										
2015										
2016										
2017										
TOTAL	1,000	38,624			13,000					

Notes:

1) 2006 ICS was created for Demonstration ICS Program but used for early payback of Inadvertent Overrun. ICS Policy was adopted in December of 2007.

2) According to ICS policy, IID is limited to 12,000 AF per year from seepage interception pumps-1,797 AF created by seepage interception unused and left in Colorado River system.

3) Early IOPP payback of conserved water to CVWD.

4) 10,528 AF created for ICS purposes but due to policy limitations in overrun years was used instead to reduce current year's overrun.

5) 14,299 AF created for ICS purposes but due to policy limitations in overrun years was used instead to reduce current year's overrun.

6) Early IOPP payback for 2011 overrun - See IOPP Accounting.

PROVISIONAL LAKE MEAD ACCOUNTING

(All Values are Consumptive Use Volumes in Acre Feet at Imperial Dam)

YEAR	IOPP			ICS				SS MITIGATION		CR REREG CONSERVATION & STORAGE				TOTAL BALANCE
	Inadvertent Overrun	Payback	Balance	Created	Diverted	Losses	Balance	Remaining in Lake Mead	Balance	Payback	Diverted To SS	Over/Under	Balance	Annual
2003	0	0	0	0	0		0		0	0	0	0	0	0
2004	0	0	0	0	0	0	0	641	641	0	15,880	-15,880	-15,880	-15,239
2005	0	0	0	0	0	0	0	0	641	15,000	21,476	-6,476	-22,356	-21,715
2006	18,914	9,957[1]	-8,950	1,000	1,000	0	0	0	641	20,000	0	20,000	-2,356	-10,665
2007	6,358	1,263	-14,045	0	0	0	0	-641	0	2,356	0	2,356	0	-14,045
2008	0	16,197	2,145[2]	0	0	0	0	0	0	0	0	0	0	0
2009	0	0	1,797[3]	12,000	0	600	11,400	-25	-25	0	0	0	0	11,375
2010	5,191	5,191[4]	0	0	5,191	186	6,023	25	0	0	0	0	0	6,023
2011[5]	82,662	0	-82,662	0[6]	0	181	5,842	0	0	0	0	0	0	-76,820
2012	134,076	6,290	-210,448	0[7]	5,842	0	0	72	72	0	0	0	0	-210,376
2013	0	93,057	-117,391	0	0	0	0	-72	0	0	0	0	0	-117,391
2014														
2015														
2016														
2017														
TOTAL	247,201	131,955		13,000	12,033	967		0		37,356	37,356	0		

Notes:

1) Includes 1,000 AF from ICS and 8,957 AF from II (B) 6.

2) MWD diversion of IID early payback per agreement

3) Additional water created by efficiency conservation left in Colo. River System as early payback and lost to IID.

4) Early IOPP payback of conserved water to CVWD from ICS

5) USBR reported overrun as 82,662 AF, which does not include the conservation shortfall of 16,722 AF that was delivered using the IOPP. USBR has not yet made a final determination regarding the final accounting of this issue.

6) 10,528 AF created for ICS purposes but due to policy limitations in overrun years was used instead to reduce current year's overrun.

7) 14,299 AF created for ICS purposes but due to policy limitations in overrun years was used instead to reduce current year's overrun.

TOTAL FALLOWING

(All Values are Consumptive Use Volumes in Acre Feet at Imperial Dam)

	ANNUAL VOLUME	MONTHLY											
YEAR		**JAN**	**FEB**	**MAR**	**APR**	**MAY**	**JUN**	**JUL**	**AUG**	**SEP**	**OCT**	**NOV**	**DEC**
2003	3,445	0	0	0	0	0	0	0	0	0	0	0	3,445
2004	79,781	3,445	3,445	3,445	3,445	3,445	3,445	13,925	11,316	11,458	9,976	6,678	5,758
2005	71,205	3,040	3,197	7,815	8,350	8,865	8,262	10,085	9,218	6,873	2,911	1,860	729
2006	98,619	1,132	1,294	10,673	12,028	12,899	11,047	13,815	10,705	10,725	6,480	4,469	3,352
2007	111,115	2,620	6,004	8,693	13,504	16,266	13,428	13,629	12,317	9,235	6,427	3,913	5,079
2008	88,050	5,287	6,278	11,930	12,041	8,361	6,652	11,033	9,158	6,585	5,460	2,295	2,970
2009	90,133	2,479	4,286	8,124	9,323	7,206	4,720	14,050	11,900	10,065	7,613	5,713	4,654
2010	103,761	4,906	4,745	12,528	14,170	9,790	7,536	12,856	9,946	7,430	9,140	5,809	4,905
2011	63,278	2,008	3,996	7,924	12,783	10,901	9,679	3,971	3,405	3,885	1,538	1,925	1,263
2012	125,315	10,426	10,426	10,426	11,216	11,354	11,354	9,449	9,449	9,449	10,589	10,589	10,589
2013	242,403	19,328	19,437	19,438	19,461	19,807	20,734	20,436	20,928	20,740	20,739	20,678	20,677
2014													
2015													
2016													
2017													
TOTAL	1,077,105												

Notes:

Each year the monthly breakdown of the annual fallowed volume of water will be refined as time and resources permit.

2003-2004 monthly distribution was assumed to be equally distributed over 13 months (December 2003 through December 2004).

2005-2011 Monthly distribution computed using the previous 12 months (Jul-Dec and Jan-Jun) delivery history for the participating gates in each of the fallowing programs.

2012 and 2013 Monthly conservation determined by monthly proration.

SDCWA TRANSFER FALLOWING

(All Values are Consumptive Use Volumes in Acre Feet at Imperial Dam)

YEAR	ANNUAL QSA OBLIGATION	ANNUAL VOLUME	ANNUAL DIFFERENCE[2]	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
2003[1]	10,000	3,445	-6,555	0	0	0	0	0	0	0	0	0	0	0	3,445
2004	20,000	20,000	0	3,445	3,445	3,445	3,445	3,445	2,775	0	0	0	0	0	0
2005	30,000	30,000	0	3,040	3,197	7,815	8,350	7,598	0	0	0	0	0	0	0
2006	40,000	40,000	0	1,132	1,294	10,673	12,028	12,899	1,974	0	0	0	0	0	0
2007	50,000	50,000	0	2,620	6,004	8,693	13,504	16,266	2,913	0	0	0	0	0	0
2008	50,000	50,000	0	5,287	6,278	11,930	12,041	8,361	6,103	0	0	0	0	0	0
2009	60,000	60,000	0	2,479	4,286	8,124	9,323	7,206	4,720	14,050	9,812	0	0	0	0
2010	70,000	70,000	0	4,906	4,745	12,528	14,170	9,790	7,536	12,856	3,469	0	0	0	0
2011[3]	80,000	63,278	-16,722	2,008	3,996	7,924	12,783	10,901	9,679	3,971	3,405	3,885	1,538	1,925	1,263
2012[3]	90,000	106,722	16,722	10,426	10,426	10,426	11,216	11,354	11,354	9,449	9,449	9,449	10,589	2,585	0
2013	80,000	80,000	0	19,328	19,437	19,438	19,461	2,336	0	0	0	0	0	0	0
2014	60,000														
2015	40,000														
2016	20,000														
2017	0														
TOTAL	700,000	573,445													

Notes:

1) Since the QSA was executed in October of 2003, IID was able to only fallow 3,445 AF and therefore had an inadvertent overrun of 6,555 AF which was used to satisfy IID's 10,000 AF obligation to SDCWA. The USBR waived payback for 2003 overruns for all Lower Basin contractors as the IOPP did not take effect until January 1, 2011.

2) Any difference in total volume compared to IID transfer obligation is satisfied by IID use of an IOPP overrun.

3) Due to the risk associated with QSA litigation, IID was able to create only 63,278 AF of the required 80,000 AF by fallowing in calendar year 2011. The balance of 16,722 AF of fallowed water, while under contract in the 2011-2012 Fallowing Program, was conserved in calendar year 2012. While IID considers the 16,722 AF to have been transferred by utilization of IID's IOPP right in calendar year 2011, to satisfy accounting deadlines, IID agreed to transfer 106,722 AF of conserved water instead of 90,000 AF in calendar year 2012; however IID reserves its position regarding the utilization of its IOPP right for transfer shortfalls.

SALTON SEA MITIGATION FALLOWING

(All Values are Consumptive Use Volumes in Acre Feet at Imperial Dam)

YEAR	ANNUAL OBLIGATION	ANNUAL VOLUME	ANNUAL DIFFERENCE	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
2003[1]	5,000	0	-5,000	0	0	0	0	0	0	0	0	0	0	0	0
2004	10,000	15,000	5,000	0	0	0	0	0	670	13,925	405	0	0	0	0
2005	15,000	15,000	0	0	0	0	0	1,267	8,262	5,471	0	0	0	0	0
2006	20,000	20,000	0	0	0	0	0	0	9,073	10,927	0	0	0	0	0
2007	25,000	25,021	21	0	0	0	0	0	10,515	13,629	877	0	0	0	0
2008	25,000	26,085	1,085	0	0	0	0	0	549	11,033	9,158	5,345	0	0	0
2009	30,000	30,133	133	0	0	0	0	0	0	0	2,088	10,065	7,613	5,713	4,654
2010	35,000	33,761	-1,239	0	0	0	0	0	0	0	6,477	7,430	9,140	5,809	4,905
2011[2]	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2012[2]	15,182	15,182	0	0	0	0	0	0	0	0	0	0	0	8,004	7,178
2013	70,000	71,398	1,398	0.0	0.0	0.0	0.0	17,471	20,734	20,436	11,359	0	0	0	1,398
2014	90,000														
2015	110,000														
2016	130,000														
2017	150,000														
TOTAL	730,182	251,580													

Notes:
1) Since the QSA was executed in October of 2003, SWRCB approved the 2003 obligation being satisfied in 2004.
2) Difference made up from used entitlement water sent to Sea in 2010 - See SS Mitigation Accounting. Final accounting of this obligation is under dispute.

CRWDA EXHIBIT C FALLOWING

(All Values are Consumptive Use Volumes in Acre Feet at Imperial Dam)

YEAR	ANNUAL OBLIGATION	ADJUSTED ANNUAL OBLIGATION[1]	ANNUAL VOLUME	ANNUAL DIFFERENCE	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
2003	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2004	18,900	18,900	18,900	0	0	0	0	0	0	0	0	10,911	7,989	0	0	0
2005	18,900	18,900	18,900	0	0	0	0	0	0	0	4,614	9,218	5,068	0	0	0
2006	18,900	18,900	18,900	0	0	0	0	0	0	0	2,888	10,705	5,307	0	0	0
2007	18,900	18,900	18,900	0	0	0	0	0	0	0	0	11,440	7,460	0	0	0
2008	18,900	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2009	18,900	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2010	19,000	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2011	19,000	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL	151,400	75,600	75,600													

Notes: 1) Annual obligation adjusted based on early CRWDA Exhibit C paybacks (See Early Exhibit C Table) and credit of 25% of Colo. River reregulation water stored in Salton Sea.

IOPP FALLOWING

(All Values are Consumptive Use Volumes in Acre Feet at Imperial Dam)

YEAR	ANNUAL VOLUME	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
2003	0	0	0	0	0	0	0	0	0	0	0	0	0
2004	0	0	0	0	0	0	0	0	0	0	0	0	0
2005	0	0	0	0	0	0	0	0	0	0	0	0	0
2006	0	0	0	0	0	0	0	0	0	0	0	0	0
2007	1,263	0	0	0	0	0	0	0	0	1,263	0	0	0
2008	11,965	0	0	0	0	0	0	0	0	1,240	5,460	2,295	2,970
2009	0	0	0	0	0	0	0	0	0	0	0	0	0
2010	0	0	0	0	0	0	0	0	0	0	0	0	0
2011	0	0	0	0	0	0	0	0	0	0	0	0	0
2012	3,411[1]	0	0	0	0	0	0	0	0	0	0	0	3,411
2013	91,005[2]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	9,569	20,740	20,739	20,678	19,279
2014	0												
2015	0												
2016	0												
2017	0												
TOTAL	107,644												

Notes:
1) 3,411 AF created for early 2011 IOPP payback, but due to policy limitations in overrun years, was used instead to reduce current year's overrun.
2) 55,710 AF meets IID's 2011 IOPP Payback obligation. Additional 35,295 AF created for early 2011 and 2012 IOPP Payback Obligations.

EARLY CRWDA EXHIBIT C FALLOWING

(All Values are Consumptive Use Volumes in Acre Feet at Imperial Dam)

YEAR	ANNUAL VOLUME	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
2003	0	0	0	0	0	0	0	0	0	0	0	0	0
2004	25,881	0	0	0	0	0	0	0	0	3,469	9,976	6,678	5,758
2005	7,305	0	0	0	0	0	0	0	0	1,805	2,911	1,860	729
2006	18,719	0	0	0	0	0	0	0	0	5,418	6,480	4,469	2,352
2007	15,931	0	0	0	0	0	0	0	0	512	6,427	3,913	5,079
2008	0	0	0	0	0	0	0	0	0	0	0	0	0
2009	0	0	0	0	0	0	0	0	0	0	0	0	0
2010	0	0	0	0	0	0	0	0	0	0	0	0	0
2011	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL	67,836												

Notes:

INTENTIONALLY CREATED SURPLUS BY FALLOWING

(All Values are Consumptive Use Volumes in Acre Feet at Imperial Dam)

YEAR	ANNUAL VOLUME	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
2003	0	0	0	0	0	0	0	0	0	0	0	0	0
2004	0	0	0	0	0	0	0	0	0	0	0	0	0
2005	0	0	0	0	0	0	0	0	0	0	0	0	0
2006	1,000	0	0	0	0	0	0	0	0	0	0	0	1,000
2007	0	0	0	0	0	0	0	0	0	0	0	0	0
2008	0	0	0	0	0	0	0	0	0	0	0	0	0
2009	0	0	0	0	0	0	0	0	0	0	0	0	0
2010	0	0	0	0	0	0	0	0	0	0	0	0	0
2011	0	0	0	0	0	0	0	0	0	0	0	0	0
2012	0	0	0	0	0	0	0	0	0	0	0	0	0
2013	0	0	0	0	0	0	0	0	0	0	0	0	0
2014													
2015													
2016													
2017													
TOTAL	1,000												

TOTAL EFFICIENCY CONSERVATION

(All Values are Consumptive Use Volumes in Acre Feet at Imperial Dam)

	Annual Volume	System Efficiency	On-Farm Efficiency	Monthly											
YEAR				**JAN**	**FEB**	**MAR**	**APR**	**MAY**	**JUN**	**JUL**	**AUG**	**SEP**	**OCT**	**NOV**	**DEC**
2003	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2004	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2005	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2006	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2007	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2008	8,232	7,651	581	0	141	524	697	811	805	906	868	856	1,022	854	748
2009	21,797	21,561	236	719	628	725	888	1,612	2,386	2,199	2,295	2,620	2,879	2,506	2,340
2010	6,809	6,809	0	2,021	671	0	0	0	0	0	0	0	33	1,709	2,375
2011	26,528	26,528	0	2,115	1,980	2,414	2,573	2,494	2,458	2,491	2,296	1,121	2,043	2,159	2,384
2012	31,888	31,888	0	2,363	2,172	2,645	2,752	2,718	2,852	2,931	2,940	2,563	2,860	2,777	2,315
2013	48,052	30,776	17,276	2,649	2,762	3,779	4,058	4,223	4,188	4,540	5,141	4,929	4,724	3,742	3,317
2014															
2015															
2016															
2017															
TOTAL	143,306	125,213	18,093												

SDCWA EFFICIENCY CONSERVATION

(All Values are Consumptive Use Volumes in Acre Feet at Imperial Dam)

YEAR	ANNUAL QSA OBLIGATION	ANNUAL VOLUME	ANNUAL DIFFERENCE	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
2003	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2004	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2005	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2006	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2007	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2008	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2009	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2010	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2011	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2012	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2013	20,000	20,000	0	2,649	2,762	3,779	4,058	4,223	2,529	0	0	0	0	0	0
2014	40,000														
2015	60,000														
2016	80,000														
2017	100,000														
TOTAL	300,000	20,000													

Notes: Efficiency conservation will be in accordance with QSA schedule.

CVWD EFFICIENCY CONSERVATION

(All Values are Consumptive Use Volumes in Acre Feet at Imperial Dam)

	ANNUAL QSA OBLIGATION[1]	ANNUAL VOLUME	ANNUAL DIFFERENCE	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
2003	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2004	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2005	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2006	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2007	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2008	4,000	4,000	0	0	141	524	697	811	805	906	116	0	0	0	0
2009	8,000	8,000	0	719	628	725	888	1,612	2,386	1,042	0	0	0	0	0
2010	12,000	6,809	-5,191[2]	2,021	671	0	0	0	0	0	0	0	33	1,709	2,375
2011	16,000	16,000	0	2,115	1,980	2,414	2,573	2,494	2,458	1,966	0	0	0	0	0
2012	21,000	21,000	0	2,363	2,172	2,645	2,752	2,718	2,852	2,931	2,567	0	0	0	0
2013	26,000	26,000	0	0	0	0	0	0	1,660	4,540	5,141	4,929	4,724	3,742	1,265
2014	31,000														
2015	36,000														
2016	41,000														
2017	45,000														
TOTAL	240,000	81,809													

Notes:

1) Efficiency conservation will be in accordance with QSA schedule.

2) IID was able to create only 6,809 AF of the required 12,000 AF by efficiency conservation due to Main Canals Seepage System pump outage problems; 5,191 AF delivered from IID's ICS account - See ICS Accounting.

IOPP EFFICIENCY

(All Values are Consumptive Use Volumes in Acre Feet at Imperial Dam)

YEAR	ANNUAL VOLUME	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
2003	0	0	0	0	0	0	0	0	0	0	0	0	0
2004	0	0	0	0	0	0	0	0	0	0	0	0	0
2005	0	0	0	0	0	0	0	0	0	0	0	0	0
2006	0	0	0	0	0	0	0	0	0	0	0	0	0
2007	0	0	0	0	0	0	0	0	0	0	0	0	0
2008	4,232	0	0	0	0	0	0	0	752	856	1,022	854	748
2009	0	0	0	0	0	0	0	0	0	0	0	0	0
2010	0	0	0	0	0	0	0	0	0	0	0	0	0
2011	10,528[1]	0	0	0	0	0	0	525	2,296	1,121	2,043	2,159	2,384
2012	10,888[2]	0	0	0	0	0	0	0	373	2,563	2,860	2,777	2,315
2013	2,052	0	0	0	0	0	0	0	0	0	0	0	2,052
2014	0												
2015	0												
2016	0												
2017	0												
TOTAL	27,700												

Notes:
1) 10,528 AF created for ICS purposes but due to policy limitations in overrun years, was used instead to reduce current year's overrun.
2) 10,888 AF created for early 2011 IOPP payback, but due to policy limitations in overrun years, was used instead to reduce current year's overrun.

ICS EFFICIENCY

(All Values are Consumptive Use Volumes in Acre Feet at Imperial Dam)

YEAR	ANNUAL VOLUME	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
2003	0	0	0	0	0	0	0	0	0	0	0	0	0
2004	0	0	0	0	0	0	0	0	0	0	0	0	0
2005	0	0	0	0	0	0	0	0	0	0	0	0	0
2006	0	0	0	0	0	0	0	0	0	0	0	0	0
2007	0	0	0	0	0	0	0	0	0	0	0	0	0
2008	0	0	0	0	0	0	0	0	0	0	0	0	0
2009	13,797[1]	0	0	0	0	0	0	1,157	2,295	2,620	2,879	2,506	2,340
2010	0	0	0	0	0	0	0	0	0	0	0	0	0
2011	0	0	0	0	0	0	0	0	0	0	0	0	0
2012	0	0	0	0	0	0	0	0	0	0	0	0	0
2013	0	0	0	0	0	0	0	0	0	0	0	0	0
2014	0												
2015	0												
2016	0												
2017	0												
TOTAL	13,797												

Notes: 1) According to ICS policy, IID is limited to 12,000 AF per year from seepage interception pumps-1,797 AF created by seepage interception unused and left in Colorado River system.

SDCWA DIVERSION AT PARKER DAM ACCOUNTING

(All Volumes in Acre Feet)

YEAR	IID ANNUAL TRANSFER OBLIGATION AT IMPERIAL DAM	MONTHLY												ANNUAL TOTAL[2]
		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	
2003	10,000												10,000	10,000[1]
2004	20,000	1,667	1,667	1,667	1,667	1,667	1,667	1,667	1,667	1,667	1,667	1,667	1,667	20,000
2005	30,000	2,500	2,500	2,500	2,500	2,500	2,500	2,500	2,500	2,500	2,500	2,500	2,500	30,000
2006	40,000	3,333	3,333	3,333	3,333	3,333	3,333	3,333	3,333	3,333	3,333	3,333	3,333	40,000
2007	50,000	4,167	4,167	4,167	4,167	4,167	4,167	4,167	4,167	4,167	4,167	4,167	4,167	50,000
2008	50,000	4,167	4,167	4,167	4,167	4,167	4,167	4,167	4,167	4,167	4,167	4,167	4,167	50,000
2009	60,000	5,000	5,000	5,000	5,000	5,000	5,000	5,000	5,000	5,000	5,000	5,000	5,000	60,000
2010	70,000	5,833	5,833	5,833	5,833	5,833	5,833	5,833	5,833	5,834	5,834	5,834	5,834	70,000
2011[3]	80,000	6,667	6,667	6,667	6,667	6,667	6,667	6,667	6,667	6,666	3,276	0	0	63,278
2012[3]	90,000	10,287	10,287	10,287	10,287	10,287	10,287	7,500	7,500	7,500	7,500	7,500	7,500	106,722
2013	100,000	8,333	8,333	8,333	8,333	8,333	8,333	8,333	8,333	8,334	8,334	8,334	8,334	100,000
2014	100,000													
2015	100,000													
2016	100,000													
2017	100,000													
TOTAL	1,000,000													600,000

Notes:

1) 3,445 from fallowing, 6,555 acre feet from inadvertent overrun.

2) Pursuant to Decree Accounting.

3) Due to the risk associated with QSA litigation, IID was able to create only 63,278 AF of the required 80,000 AF by fallowing in calendar year 2011. The balance of 16,722 AF of fallowed water, while under contract in the 2011-2012 Fallowing Program, was conserved in calendar year 2012. While IID considers the 16,722 AF to have been transferred by utilization of IID's IOPP right in calendar year 2011, to satisfy accounting deadlines, IID agreed to transfer 106,722 AF of conserved water instead of 90,000 AF in calendar year 2012; however IID reserves its position regarding the utilization of its IOPP right for transfer shortfalls.

CVWD DIVERSION AT IMPERIAL DAM ACCOUNTING

(All Volumes in Acre Feet)

YEAR	IID ANNUAL TRANSFER OBLIGATION AT IMPERIAL DAM	MONTHLY												ANNUAL TOTAL[2]
		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	
2003	0													0
2004	0													0
2005	0													0
2006	0													0
2007	0													0
2008	4,000	333	333	333	333	333	333	333	333	334	334	334	334	4,000
2009	8,000	667	667	666	667	667	666	667	667	666	667	666	667	8,000
2010	12,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	12,000
2011	16,000	1,333	1,333	1,333	1,333	1,333	1,333	1,333	1,333	1,333	1,333	1,333	1,333	16,000
2012	21,000	1,750	1,750	1,750	1,750	1,750	1,750	1,750	1,750	1,750	1,750	1,750	1,750	21,000
2013	26,000	2,166	2,166	2,166	2,166	2,167	2,167	2,167	2,167	2,167	2,167	2,167	2,167	26,000
2014	31,000													0
2015	36,000													0
2016	41,000													0
2017	45,000													0
TOTAL	240,000													87,000

Notes: 2) Pursuant to Decree Accounting.

APPENDIX 2

Water Conservation Projects for Order WR 88-20 Transfer to MWD

APPENDIX 2

WATER CONSERVATION PROJECTS FOR
ORDER WR 88-20 TRANSFER TO MWD[1]

Project #	Project Name
1	Robert F. Carter (Trifolium) Reservoir
2	South Alamo Canal Lining, Phase I
3	Plum-Oasis (Lateral) Interceptor
4	Bernard Galleano (Z) Reservoir
5	South Alamo Canal Lining, Phase II
7	Lateral Canal Lining
8	Trifolium Interceptor
9	12-Hour Delivery
10	Vail Supply Canal Lining
11	Rositas Supply Canal Lining
12	Non-Leak Gates
14	Irrigation Water Management
15	System Automation
16	Westside Main Canal Lining, North
17	Mulberry-D (Modified East Lowline) Interceptor
18	Additional Irrigation Water Management

[1] Project 6 (Sperber Reservoir Outlet) and Project 13 (Tailwater Assessment) were included in the original Water Conservation Agreement. Project 6 was dropped from the IID/MWD Program by the Program Coordinating Committee because savings were found to be insufficient; Project 13 was replaced by Projects 17 and 18 in the Approval Agreement.

APPENDIX 3

Schedule of Mitigation Fallowing Alternative for Salton Sea Conservation Strategy

EXHIBIT __
COMPROMISE IID/SDCWA AND QSA DELIVERY SCHEDULE

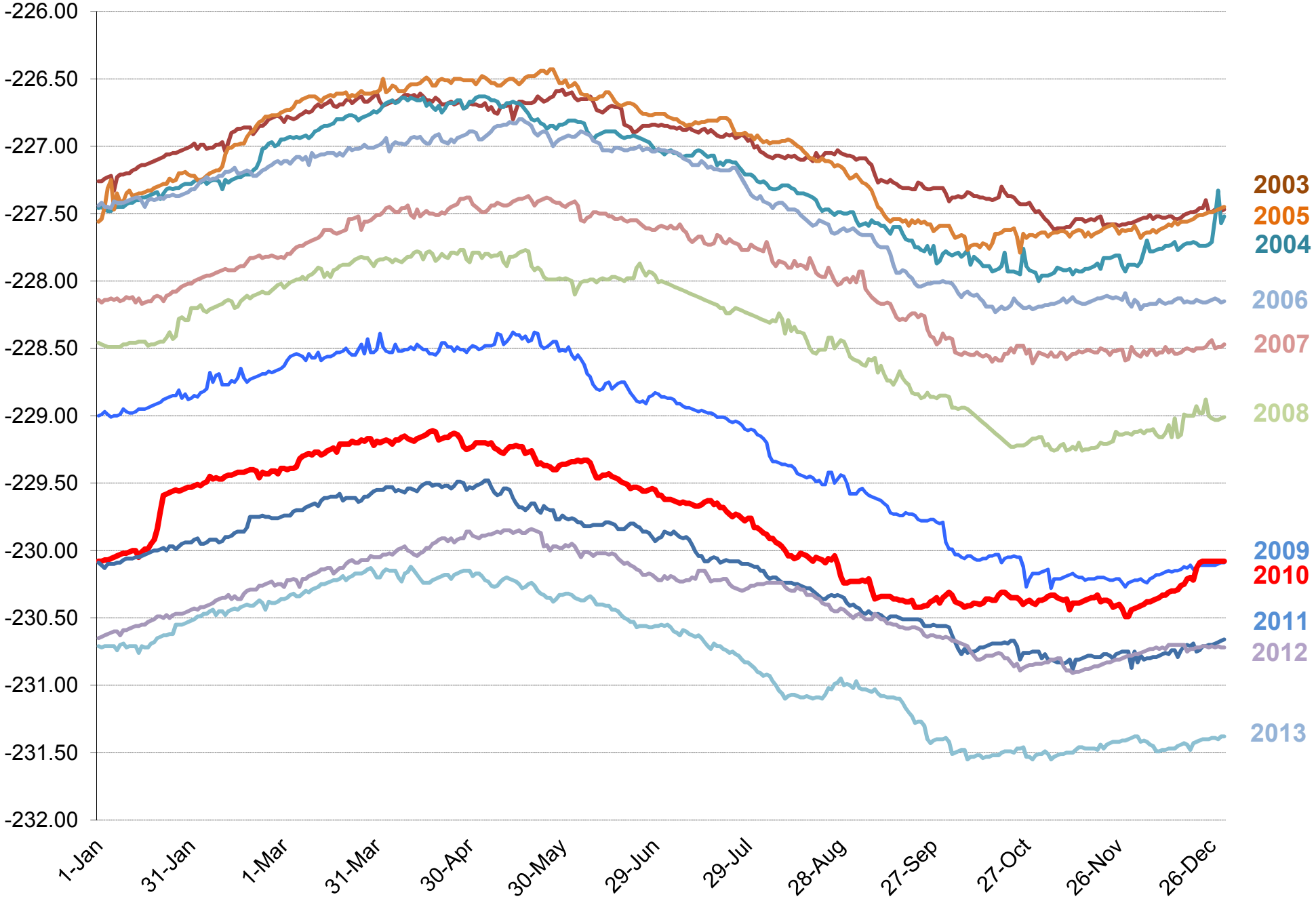
Agmt Yr	Cal Yr	IID/SD (KAF)	IID/CVWD (KAF)[1]	IID/MWD (KAF)	Total Delivery (KAF)	Total Efficiency (KAF)	Fallowing for Delivery (KAF)	Mitigation Fallowing (KAF)	Total Fallowing (KAF)
1	2003	10	0	0	10	0	10	5	15
2	2004	20	0	0	20	0	20	10	30
3	2005	30	0	0	30	0	30	15	45
4	2006	40	0	0	40	0	40	20	60
5	2007	50	0	0	50	0	50	25	75
6	2008	50	4	0	54	4	50	25	75
7	2009	60	8	0	68	8	60	30	90
8	2010	70	12	0	82	12	70	35	105
9	2011	80	16	0	96	16	80	40	120
10	2012	90	21	0	111	21	90	45	135
11	2013	100	26	0	126	46	80	70	150
12	2014	100	31	0	131	71	60	90	150
13	2015	100	36	0	136	96	40	110	150
14	2016	100	41	0	141	121	20	130	150
15	**2017**	**100**	**45**	**0**	**145**	**145**	**0**	**150**	**150**
16	2018	130	63	0	193	193	0	0	0
17	2019	160	68	0	228	228	0	0	0
18	2020	192.5	73	2.5	268	268	0	0	0
19	2021	205	78	5.0	288	288	0	0	0
20	2022	202.5	83	2.5	288	288	0	0	0
21	2023	200	88	0	288	288	0	0	0
22	2024	200	93	0	293	293	0	0	0
23	2025	200	98	0	298	298	0	0	0
24	2026	200	103	0	303	303	0	0	0
25	2027	200	103	0	303	303	0	0	0
26	2028	200	103	0	303	303	0	0	0
27-45	2029-2047	200	103	0	303	303	0	0	0
46-75	2048-2077	200	50	0	250	250	0	0	0

[1] or MWD if CVWD declines to acquire.

APPENDIX 4

Salton Sea Elevation Change 2003-2013

SALTON SEA ELEVATION @ FIG TREE JOHN
2003-2013



2/20/2014

APPENDIX 5

Reconciliation of BOR Final Decree Reporting Numbers compared to those Reported by IID

in 2004-2012 SWRCB Annual Reports

APPENDIX 5

Reconciliation of BOR "Final" Decree Reporting Numbers Compared to those Reported by IID in 2004, 2005, 2006, 2007, 2008, 2009, 2010, 2011 and 2012 SWRCB Annual Reports

2004

	2004 SWRCB Report	Final BOR 2004 Report	% Change
quantity diverted at Imperial Dam	2,853,695	2,822,794	1.1%
returns	96,575	93,814	2.9%
IOPP variations	n/a		--
gross diversions at Whitsett Intake	753,095	753,095	0.0%
Whitsett Intake diversion per Order	20,000	20,00	0.0%

2005

	2005 SWRCB Report	Final BOR 2005 Report	% Change
quantity diverted at Imperial Dam	2,882,166	2,860,526	0.8%
returns	103,844	103,680	0.2%
IOPP variations	n/a		--
gross diversions at Whitsett Intake	901,353	869,704[1]	3.5%
Whitsett Intake diversion per Order	30,000	30,000	0.0%

2006

	2006 SWRCB Report	Final BOR 2006 Report	% Change
quantity diverted at Imperial Dam	2,994,321	2,994,325	0.0%
returns	84,631	84,645	0.0%
IOPP variations	18,407	17,914[2]	--
gross diversions at Whitsett Intake	635,574	635,558[1]	0.0%
Whitsett Intake diversion per Order	40,000	40,000	0.0%

2007

	2007 SWRCB Report	Final BOR 2007 Report	% Change
quantity diverted at Imperial Dam	2,951,932	2,952,526	0.0%
returns	79,754	79,772	0.0%
IOPP variations	5,977	6,358	6.0%
gross diversions at Whitsett Intake	716,289	716,289	0.0%
Whitsett Intake diversion per Order	50,000	50,000	0.0%

2008

	2008 SWRCB Report	Final BOR 2008 Report	% Change
quantity diverted at Imperial Dam	2,919,056	2,919,108	0.0%
returns	93,938	93,992	0.0%
IOPP variations	-48,956	n/a[3]	--
gross diversions at Whitsett Intake	908,480	907,807	0.1%
Whitsett Intake diversion per Order	50,000	50,000	0.0%

2009

	2009 SWRCB Report	Final BOR 2009 Report	% Change
quantity diverted at Imperial Dam	2,683,184	2,679,356	0.1%
returns	111,223	112,644	1.3%
IOPP variations	-230,000	-237,767[4]	3.4%
gross diversions at Whitsett Intake	1,107,683	1,107,683	0.0%
Whitsett Intake diversion per Order	60,000	60,000	0.0%

2010

	2010 SWRCB Report	Final BOR 2010 Report	% Change
quantity diverted at Imperial Dam	2,655,267	2,651,988	0.1%
returns	116,318	106,395	8.5%
IOPP variations	-208,000[5]	-248,207[6]	19.3%
gross diversions at Whitsett Intake	1,101,524	1,101,590	0.0%
Whitsett Intake diversion per Order	70,000	70,000	0.0%

2011

	Revised 2011 SWRCB Report	Final BOR 2011 Report	% Change
quantity diverted at Imperial Dam	3,013,993	3,013,993	0.0%
returns	98,209	98,209	0.0%
IOPP variations	99,384[7]	93,190[8]	-6.2%[9]
gross diversions at Whitsett Intake	701,966	701,966	0.0%
Whitsett Intake diversion per Order	80,000	63,278[10]	-20.9%

2012

	2012 SWRCB Report	Final BOR 2012 Report	% Change
quantity diverted at Imperial Dam	3,024,673	3,024,458	0.0%
returns	121,241	121,242	0.0%
IOPP variations	135,000-150,000	134,076[11]	0.0%
gross diversions at Whitsett Intake	739,014	739,017	0.0%
Whitsett Intake diversion per Order	90,000	106,722[10]	0.0%

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[1] Difference is not related to IID performance of conserved water transfers.
[2] Prior to credit for II(B)(6) unused entitlement.

[3] Underuse is not reported in BOR Accounting Report.
[4] Underuse is not reported in BOR Accounting Report but can be calculated as of 2009.
[5] Revised to reflect May 31, 2011 accounting shown in Appendix 1.
[6] Underuse is not reported in BOR Accounting Report but can be calculated as of 2010. IID's most recent (May 31, 2011) water accounting reports indicate a 2010 underuse of 207,925 AF as a result of an accounting dispute regarding the diversion of entitlement water to the Salton Sea for storage purposes in 2010. The accounting of this issue is under review and not yet resolved.
[7] IID's 99,384 AF overrun estimate in 2011 includes a 16,722 AF conservation shortfall for SDCWA that IID considers to have been transferred by utilization of IID's IOPP right; adjusting for this reduction results in an overrun estimate of 82,662 AF that is equal to BOR's reported end-of-year overrun account balance for IID in 2011 (see footnote 8).
[8] BOR reports IID's 2011 calendar year overrun as 93,190 AF, however due to excess conservation created in 2011 IID's end-of-year overrun account balance was reduced to 82,662 AF in 2011.
[9] See footnotes 7 and 8; IID continues to assert its right to utilize the IOPP for conservation shortfalls.
[10] Due to the risk associated with QSA litigation, IID was able to create only 63,278 AF of the required 80,000 AF of conservation by fallowing in calendar year 2011. The balance of 16,722 AF of conserved water was under contract in the 2011-2012 fallowing program, but was conserved in calendar year 2012 (see 2012 table). While IID considers the 16,722 AF to have been transferred by utilization of IID's IOPP right in calendar year 2011, to satisfy BOR accounting deadlines IID has agreed to transfer 106,722 AF of fallowed water, instead of 90,000 AF, in calendar year 2012. See also footnote 7.
[11] BOR reports IID's 2012 calendar year overrun as 148,375 AF, however due to excess conservation created in 2012 IID's end-of-year overrun account balance was reduced to 134,076 AF in 2012.

APPENDIX 6

2013-2014 IID Fallowing Program Contract Template

AGREEMENT FOR FALLOWING LAND
IN THE IMPERIAL IRRIGATION DISTRICT

THIS AGREEMENT FOR FALLOWING LAND IN THE IMPERIAL IRRIGATION DISTRICT ("Agreement") is made and entered into as of the 1st day of MONTH 2013, by the Imperial Irrigation District ("IID") and the person(s) or entity referred to as "Fallowing Party" listed on the signature page of this Agreement (collectively, "Parties"), each of which is at times referred to individually as Party.

RECITALS

A. IID, as a trustee under the California Irrigation District Law, holds water rights to and diverts water from the Colorado River for distribution and use within its service area.

B. IID has completed an environmental assessment of proposed water conservation and transfer activities pursuant to the California Environmental Quality Act ("CEQA"), as set forth in a Final EIR/EIS for the IID Water Conservation and Transfer Project certified by IID in June 2003, as supplemented by an Amended and Restated Addendum thereto certified by IID in October 2003 (collectively, "Transfer EIR").

C. IID has entered into a conserved water transfer agreement with the San Diego County Water Authority ("SDCWA"), which involves the creation of conserved water by fallowing until 2017 for transfer to SDCWA and/or use for environmental mitigation of impacts of reduced inflow to the Salton Sea. In addition, IID has entered into an agreement with the United States and others to limit its diversions under Priority 3 and to repay inadvertent overruns on a certain schedule. For purposes of meeting these agreements, IID will create conserved water by fallowing for transfer and mitigation purposes as well as for use as Inadvertent Overrun Payback and Intentionally Created Surplus.

D. Fallowing Party owns or leases xxx irrigable acres (defined by FSA) of agricultural property within the IID service area served by CANAL/GATE ("Fallow Lands").

E. If Fallowing Party is a lessee or joint fee owner of the Fallow Lands, the identity of the fee owner or joint fee owners, lessor, any sublessor, and the remaining term of the lease or sublease is identified on Exhibit "A" attached hereto.

F. Fallowing Party is willing to fallow the Fallow Lands for the limited time period and in accordance with the other terms and conditions set forth herein, in order to assist IID in meeting its obligations described above.

NOW, THEREFORE, IN CONSIDERATION OF THE ABOVE RECITALS AND THE COVENANTS AND OBLIGATIONS SET FORTH HEREIN, THE PARTIES AGREE AS FOLLOWS:

1. Term

The term of this Agreement ("Term") shall commence on MONTH 1, 2013 ("Start Date") and expire on June 30, 2014. Should the Term of this Agreement exceed twelve (12) months, the fallowing period in excess of one year is the "additional fallowing period."

2. Conserved Water Yield and Payment

A. Conserved Water Yield and Adjustments Thereto

Payments by IID to Fallowing Party shall be based on the Annual Conserved Water Yield of Fallowing Party's Fallowed Lands. The Annual Conserved Water Yield is determined from the following water use history formula adopted by the IID Board of Directors and adjusted as necessary to account for each field's more recent water use changes or trends as determined during an analysis of the water use data:

> Water use history is calculated from a field's ten-year running average annual water use adjusted for prior fallowing program participation (2002-2011 for the 2013-2014 Fallowing Program) less the high and low years from that period.

Should the Term of this Agreement exceed one year, the Total Conserved Water Yield shall be calculated as the Annual Conserved Water Yield plus a monthly proration of the Annual Conserved Water Yield calculated as follows: Annual Conserved Water Yield plus Annual Conserved Water Yield divided by 12 and multiplied by the number of months in the additional fallowing period.

Additionally, the IID Board of Directors has capped the average annual water use of any field at six acre-feet per acre for payment purposes ("cap"). Collectively the water use history, any adjustments, and cap are referred to as Fallowed Lands' Annual Fallowing Baseline, "Annual Baseline." Should the Term of this Agreement exceed one year, the additional fallowing period's Baseline shall be calculated as a proration of the Annual Baseline as follows: Annual Baseline divided by 12 and multiplied by the number of months in the additional fallowing period. The Annual Baseline plus any prorated Baseline is the Total Baseline and applies to the Term of this Agreement. This prorated Baseline is the Total Baseline and applies to the Term of this Agreement.

If an SDI Declaration is made by IID and an Equitable Distribution Plan, as amended from time to time, or any other apportionment of any kind whatsoever under any IID rules, regulations and policies, is implemented during all or any part of the Term, then the Fallowing Party is deemed to have assigned to IID an amount of the Fallowed Lands' Annual Apportionment equal to the Fallowed Lands' Annual Baseline during the period an Equitable Distribution Plan is in effect and during the relevant apportionment Water Year. If a Fallowed Lands' Annual Baseline is less than the Annual Apportionment for the Fallow Lands, then any amount in excess of the Annual Baseline may be assigned to other lands through the District Water Exchange or Agricultural Water Clearinghouse, returned to the IID, or used by the Fallowing Party on other lands of the Fallowing Party not included in the IID Fallowing Program. Any Annual

Apportionment in excess of the Annual Baseline may also be used on the participating Fallow Lands provided it is not during the Term of the Fallowing Program and does not conflict with any other program requirements. Similarly, if the Fallowed Lands' Annual Baseline is greater than the Annual Apportionment for the Fallowed Lands, then the Fallowing Party must either assign a portion of any Annual Apportionment for the applicable apportionment Water Year from other lands of the Fallowing Party to IID or purchase the additional necessary water through the District Water Exchange or Agricultural Water Clearinghouse and assign that purchased water to IID 30 days prior to any applicable payment deadlines.

If an Equitable Distribution Plan is in effect for less than a full apportionment Water Year or the Term, then the Fallowing Party is deemed to have assigned only the portion of the Fallowed Lands' Apportionment equal to the Fallowed Lands' Annual Baseline divided by 12 and multiplied by the number of months that the Equitable Distribution Plan is in effect.

B. Payment and Assignment of Annual Baseline Obligations

As consideration for the Fallowing Party's performance of its obligations hereunder, IID shall make payments to the Fallowing Party in the following manner.

(1) Payment for Fallowing: The total amount of $_____ is calculated as follows: ($125/acre-foot x ## Irrigable acres defined by FSA x #.# acre-feet per acre Annual Baseline) divided by 12, and then multiplied by the number of months fallowed. This amount shall be divided into three (3) equal payments to be issued on or before August 31, 2013, January 15, 2014 and August 31, 2014:

(a) In addition to the timely satisfaction of all other obligations of the Fallowing Party under this Agreement, payment of the first payment by IID on or before August 31, 2013 is expressly conditioned on Fallowing Party's satisfaction of the following:

i. If an Equitable Distribution Plan or Apportionment is in effect during the 2013 Water Year and if the Fallowed Lands' Annual Baseline is less than or equal to the Fallowed Lands' 2013 Annual Apportionment, the Fallowing Party is deemed to have assigned to the IID a portion of the Fallowed Lands' 2013 Annual Apportionment (and/or shall assign a portion of Fallowing Party's 2013 Annual Apportionment from Fallowing Party's Non-Fallowed Lands or water purchased through the District Water Exchange or Agricultural Water Clearinghouse, as needed) equal to the Fallowed Lands' prorated Baseline (Annual Baseline divided by twelve (12) and multiplied by the number of months fallowed in 2013) on or before the Start Date.

ii. If an Equitable Distribution Plan or Apportionment is in effect during the 2013 Water Year and if the Fallowed Lands' Annual Baseline exceeds the Fallowed Lands' 2013 Annual Apportionment, the Fallowing Party is deemed to have assigned to the IID the portion of the Fallowed Lands' 2013 Annual Apportionment equal to the Fallowed Lands' prorated Baseline (Annual Baseline divided

by twelve (12) and multiplied by the number of months fallowed in 2013). If this prorated Baseline is more than the Fallowed Lands' apportionment balance, the Fallowing Party is deemed to have assigned to the IID the balance of the Fallowed Lands' 2013 Annual Apportionment, and shall also assign a portion of Fallowing Party's 2013 Annual Apportionment from Fallowing Party's Non-Fallowed Lands or water purchased through the District Water Exchange or Agricultural Water Clearinghouse, as needed, equal to a proration of the Fallowed Lands' 2013 Annual Apportionment (calculated as the Fallowed Lands' 2013 Annual Apportionment divided by twelve (12) and multiplied by the number of months fallowed in 2013, or if a delayed apportionment start date, a similar proration of the Fallowed Lands' 2013 Apportionment divided by the total number of months the apportionment is in effect in 2013 and multiplied by the number of months fallowed in that apportionment period) on or before the Start Date.

(b) In addition to the timely satisfaction of all other obligations of the Fallowing Party under this Agreement, payment of the second payment by IID on or before January 15, 2014 is expressly conditioned on the Fallowing Party's satisfaction of the following:

i. If the 2013 SDI Declaration or Apportionment has not been terminated as of November 1, 2013 and the Fallowed Lands' Annual Baseline exceeds the Fallowed Lands' 2013 Annual Apportionment, the Fallowing Party shall additionally assign to the IID that portion of the Fallowed Lands' 2013 Annual Apportionment (or a portion of Fallowing Party's 2013 Annual Apportionment from Fallowing Party's Non-Fallowed Lands or water purchased through the District Water Exchange or Agricultural Water Clearinghouse, as needed) equal to the balance, if any, of the Fallowed Lands' prorated Baseline (Annual Baseline divided by twelve (12) and multiplied by the number of months fallowed in 2013) on or before November 30, 2013.

ii. If an Equitable Distribution Plan or Apportionment is in effect during the 2014 Water Year, the Fallowing Party is deemed to have assigned to the IID a portion of the Fallowed Lands' Annual Apportionment equal to 50% of the Fallowed Lands' Annual Baseline as of January 1, 2014.

(c) The third and final payment shall be made no later than August 31, 2014, provided that IID has verified that Fallowing Party has satisfied all of its obligations under this Agreement.

Attached as Exhibit "D" is a schedule of Annual Apportionment assignment and payment deadlines. If at any time the IID determines that Fallowing Party is in noncompliance with this Agreement or delinquent on any water accounts, payments may be suspended as provided in Section 12.

(2) Should the payment rate of $125/acre-foot be increased for the 2013-2014 fallowing program after the execution of this Agreement, an amendment will be issued to modify the Payment for Fallowing based on the increased payment rate.

(3) Payment for Dust Control and Mitigation: Fallowing Party shall be reimbursed for the costs of IID pre-approved Best Management Practices (BMPs) for dust control and mitigation compliance in conformance with Exhibit C in two (2) equal payments. The first payment shall be made before December 31, 2013, provided that IID has verified that Fallowing Party is in compliance with this Agreement. The second and final payment shall be made no later than August 31, 2014, provided that IID has verified that Fallowing Party has fulfilled all of its obligations under this Agreement. If at any time the IID determines that Fallowing Party is in noncompliance with this Agreement or has not implemented the IID pre-approved Dust Control BMP reported as per Exhibit C, payments may be suspended as provided in Section 12. For purposes of dust control and mitigation cost reimbursement under this subsection, costs shall be based upon the Dust Control BMP Reimbursement Schedule issued annually by the IID and associated with the pre-selected and IID-approved Dust Control BMP implemented by the Fallowing Party, as required by Exhibit C, that would not have been incurred by Fallowing Party if Fallowing Party had not been a Party to this Agreement. All dust control measures must be pre-approved in writing by the IID before reimbursement considerations will be made.

3. Applicability of Williamson Act

Fallowing Party represents that, either:

A. No portion of the Fallow Lands is subject to a contract pursuant to the California Land Conservation Act of 1965 ("Williamson Act") with the County of Imperial or other agency; or

B. If all or any portion of the Fallow Lands is subject to a Williamson Act contract, said contract does not prohibit fallowing of the Fallow Lands as required pursuant to this Agreement.

This Agreement is not intended to impede or prevent compliance with any Williamson Act contract applicable to the Fallow Lands or to adversely affect any rights or benefits accruing thereunder.

4. Fallowing Party Representations and Warranties

Fallowing Party represents and warrants to IID the following and acknowledges that IID is relying on the following representations and warranties:

A. The Fallow Lands are within the IID Service Area receiving water and the requisite IID Water Cards have been signed and presented to IID in a form acceptable to IID.

B. Fallowing Party is the sole fee title owner of the Fallow Lands, a joint fee owner of the Fallow Lands, or the lessee of the Fallow Lands, and has the full right, power and authority to execute this Agreement and to carry out each and every obligation hereunder. To the best of Fallowing Party's knowledge, no legal impediment exists regarding the Fallow Lands to prevent Fallowing Party from entering into or performing under this Agreement; this Agreement will be a legal and binding obligation of Fallowing

Party enforceable against Fallowing Party in accordance with its terms and will not violate any provisions of any agreement to which Fallowing Party is a party or to which Fallowing Party is subject; and Fallowing Party's agreement to fallow the Fallow Lands does not and will not violate applicable laws or recorded documents affecting the Fallow Lands.

C. Including participation in this 2013-2014 fallowing program, the Fallow Lands have not been contracted for fallowing for more than three of the last five fallowing programs

D. The Fallow Lands are whole fields equal to or greater than (10) acres with defined historic boundaries.

E. The Fallow Lands have been irrigated for crop production or leaching, or used as duck ponds the previous three (3) years, excluding the years contracted for fallowing.

F. The Fallow Lands would have been planted for agricultural production in the crop(s) identified on Exhibit B, leached or used as duck ponds during the Term of this Agreement had the lands not been fallowed pursuant to this Agreement.

G. All information submitted by the Fallowing Party to the IID in Fallowing Party's Proposal to Fallow is true and correct as of the time of submittal. This contract is only valid for the Fallowing Party submitting the Proposal to Fallow and is not transferable prior to execution.

H. The Fallow Lands are zoned agriculture and Fallowing Party will take no action to cause or support a change in such zoning during the contracted-for fallowing period.

I. Fallowing Party acknowledges that IID retains all water rights to the Colorado River in its name and control as a trustee under the California Irrigation District Law, and no water rights or other rights to water are created by this Agreement.

J. Fallowing Party has provided IID with an accurate and complete written plan and schedule to accommodate service pipes.

5. Obligations of Fallowing Party

A. Fallowing

Fallowing Party shall fallow the Fallow Lands during the Term defined in this Agreement, which requires that there be no irrigation, application or use of water thereon during the Term.

B. Dust Control and Mitigation Requirements

Fallowing Party shall be responsible for and undertake the timely control of all dust on the Fallow Lands as described on Exhibit C, and shall provide to IID proof of performance and evidence of the costs and expenses incurred for dust control and mitigation requirements. Fallowing Party must complete and return the mitigation reporting forms according to the deadlines established in Exhibit C, and Dust Control BMPs must be selected and approved by IID prior to implementation or July 1, 2013, whichever is earlier.

C. Weed Control

Fallowing Party shall be responsible for and undertake the timely control of all weeds on the Fallow Lands as required by the Imperial County Ordinance, Title 9, Division 18; "ABATEMENT OF WEEDS AND OTHER VEGETATION."

D. Water Charges and Fees

Fallowing Party shall continue to be responsible for all water delivery and water availability charges on lands owned and leased within the IID service area subject to IID's Regulation No. 11 as if this Agreement were not in effect, and all such charges shall be timely paid before they become delinquent or IID may withhold Fallowing Payments until such time that the Fallowing Party is current on such charges.

E. Taxes

All real and personal property taxes, assessments or other charges of every description levied on or assessed against the Fallow Lands or improvements on the Fallow Lands shall remain the sole responsibility of the Fallowing Party and/or Fallowing Party's Lessor, if applicable. All tax payments shall be made directly to the charging authority prior to delinquency.

F. Right of Entry

Fallowing Party agrees that IID and its designees shall have the right to enter the Fallow Lands and, to the extent necessary, other land owned or leased by Fallowing Party for the purpose of verification, monitoring, and enforcement of compliance with this Agreement.

G. Joint Ownership of Fallow Lands or if Land is Already Subject to Leases or Contracts

Fallowing Party shall be responsible for compliance with the terms, covenants and conditions of any existing leases and/or contracts and/or the real property rights of any third parties to this Contract (including but not limited to the fee or joint fee owners of the Fallow Lands) affecting the Fallow Lands, and shall defend, indemnify and hold IID harmless from any and all claims by third parties for damages allegedly related to this agreement or to the performance thereof.

If Fallowing Party is a lessee or joint fee owner of the Fallow Lands, the identity of the fee owner or joint fee owners, lessor, any sublessor, and the remaining term of the lease or sublease must be identified on Exhibit A attached hereto.

H. Assignment of Annual Baseline in the Event of SDI Declaration and/or Implementation of Equitable Distribution Plan or Apportionment

Fallowing Party agrees to take the actions set forth in Section 2.A above if the IID implements an Equitable Distribution Plan, as amended from time to time, or any other apportionment of any kind whatsoever under any IID rules, regulations and policies, and the Annual Apportionment for the Fallow Lands is greater than or less than the Fallowed Lands' Annual Baseline.

I. Rules Compliance

Fallowing Party must comply with all IID requirements, including, regulations, resolutions, policies and procedures, with regard to the Fallow Lands. The failure to comply with such rules shall be independent grounds for IID to terminate this Agreement and disqualify Fallowing Party and/or the Fallow Lands from participation in the instant and future fallowing programs.

6. Governing Law

This Agreement shall be interpreted, governed by and construed under the laws of the State of California.

7. No Third-Party Rights

The Parties do not intend to create rights in or to grant remedies to any third party as a beneficiary of this Agreement.

8. Assignment of Agreement

This Agreement shall be binding upon and inure to the benefit of the Parties and their permitted successors and assigns. No Party may assign or transfer its rights or obligations under this Agreement without the prior written consent of the other Party hereto. Formal consent shall require that the parties fully execute a separate agreement as provided by the IID.

9. Change in Legal Status Affecting Fallow Lands

Notwithstanding that which is provided in Section 8, any activity affecting the legal status of the Fallow Lands during the term of this Agreement shall not negate any obligations in this Agreement. Any party acquiring title to the Fallow Lands or taking assignment or sublease of the lease of the Fallow Lands shall be bound to the Term of this Agreement as if a signatory. Fallowing Party shall give notice of this obligation to any such party prior to effecting any change in the legal status of the Fallow Lands. In the event of any change affecting the legal status of the Fallow Lands, Fallowing Party shall notify IID in writing within ten (10) days of such change.

10. Legal Effect on Fallow Lands

Except as otherwise expressly stated herein, nothing herein shall be construed as affecting the legal status of the Fallow Lands, including, but not limited to, the effect of liens, encumbrances, statutory or regulatory requirements, or entitlements. Fallowing Party agrees that IID is not responsible for, and no action or conduct of IID, its staff or other representatives, shall be construed as advice or identification of the legal effect or consequences, if any, of the Fallowing Party's decision regarding fallowing.

11. Non-precedent

Neither the terms and conditions in this Agreement, nor the execution of this Agreement, shall be deemed to give the Fallowing Party any rights to obtain any similar agreement after the expiration of the Term. In addition, IID reserves the right to change any rules governing the fallowing of land to create conserved water in any future agreement and to determine the provisions of any future agreement relating to the fallowing of land to create conserved water.

12. Noncompliance with Terms of Agreement

If IID determines at any time that the Fallowing Party is in noncompliance with or has breached this Agreement, the Fallowing Party will be provided notice of such noncompliance or breach at the address or contact information provided in Section 16, and shall have twenty-four (24) hours from the time of such notice to cure the noncompliance or breach. If the noncompliance or breach is not timely cured, remaining payments may be withheld by IID. In addition, Fallowing Party will be responsible for any other losses suffered by IID as a result of the noncompliance or breach, including reimbursement of staff time and administrative expenses associated with the remedy of any noncompliance or breach as well as financial penalties and costs associated with the replacement of lost water conservation yield as a result of the noncompliance or breach. Nothing contained herein shall preclude the IID from exercising any other available remedy in law or equity, including specific performance.

13. Termination

This Agreement may be terminated at any time with the consent of both Parties under mutually acceptable terms executed in writing by the Parties.

14. Entire Agreement

This Agreement constitutes the entire understanding of the Parties hereto.

15. Amendment

This Agreement may not be modified or amended except in writing executed by the Parties.

16. Contacts

A. All notices, requests, demands, payments, and other communications required or permitted under this Agreement shall be in writing and shall be deemed to have been received either when delivered or on the fifth (5th) business day following the mailing, by registered or certified mail, postage prepaid return receipt requested, whichever is earlier, addressed as set forth below:

1) If to IID:

Manager, Water Department
Imperial Irrigation District
333 East Barioni Boulevard
P.O. Box 937
Imperial, CA 92251

2) If to Fallowing Party (please print):

Name _____

Address _____

_____

_____

Phone _____

Fax _____

B. Any Party may change the addressee or address to which communications or copies are to be sent by giving notice of such change of addressee or address in conformity with the provision of this Paragraph 16 for the giving of notice.

17. Counterparts

This Agreement may be executed in counterparts, each of which, when executed and delivered, shall be an original and all of which together shall constitute one instrument with the same force and effect as though all signatures appeared on a single document.

18. Recording of Memorandum of Agreement.

Fallowing Party agrees that IID may, and Fallowing Party will cooperate to permit, a memorandum identifying the existence and summary of this Agreement to be recorded in the real property records for the County of Imperial.

IN WITNESS WHEREOF, the Parties hereto have executed this Agreement on the day and year first above written.

IMPERIAL IRRIGATION DISTRICT

_____

Manager, Water Department

Date _____

FALLOWING PARTY as

□ Lessee of Fallow Lands
□ Joint Owner of Fallow Lands
□ Sole Owner of Fallow Lands

Signature _____

Print Name_____

Date_____

Signature _____

Print Name_____

Date_____

EXHIBIT A

CONSENT OF FEE OWNER, LESSOR, SUBLESSOR AND LEASE TERM (AS APPLICABLE)

If Fallowing Party is either a lessee or joint fee owner of the Fallow Lands, the identity of the fee owner or joint fee owners, lessor, any sublessor, and the remaining term of the lease or sublease must be identified on Exhibit A.

Fee Owner

Name _____

Address _____

Signature _____

Date _____

Joint Fee Owner(s) (If Applicable)

Name _____

Address _____

Signature _____

Date _____

Lessor (If Applicable)

Name _____

Address _____

Signature _____

Date _____

Sublessor (If Applicable)

Name _____

Address _____

Signature _____

Date _____

Remaining Term of Lease (If Applicable) _____

Remaining Term of Sublease (If Applicable) _____

EXHIBIT B

CROP(S) THAT WOULD HAVE BEEN GROWN ON THE FALLOW LANDS

The information submitted below may be utilized in the Local Entity mitigation program to offset certain socioeconomic impacts of land fallowing resulting from the creation of conserved water for transfer to the San Diego County Water Authority. Please be as specific as possible; accuracy is a critical element in the determination of impacts and award of mitigation funding.

If the Fallowing Party is not the grower, please coordinate your responses with the last tenant in order to verify the crop rotation information requested below. All information submitted in this Agreement is subject to validation by IID.

Canal and Gate: _____

Acreage (FSA): _____

Current crop (or if idle last crop grown prior to entering this Fallowing Program): _____

_____

1st crop that would have been grown on the Fallow Lands if not for participation in the 2013 -2014 Fallowing Program:

Established alfalfa? Yes ☐ No ☐ If yes, seed crop? Yes ☐ No ☐

Established bermuda? Yes ☐ No ☐ If yes, seed crop? Yes ☐ No ☐

Other crop: _____

Estimated plant date: _____

2nd crop that would have been grown on the Fallow Lands if not for participation in the 2013-2014 Fallowing Program (if applicable):

Crop: _____

Estimated Plant date: _____

EXHIBIT C
DUST CONTROL AND MITIGATION REPORTING REQUIREMENTS APPLICABLE TO CONSERVATION BY FALLOWING FOR 2013-2014

In order to satisfy mitigation and reporting requirements in accordance with the Transfer EIR (defined in Recital B), the Fallowing Party shall be responsible for and comply with the following requirements:

1. MITIGATION REQUIREMENTS

A. In order to mitigate air quality impacts on Fallow Lands, only the Best Management Practices ("BMPs") recommended by the US Department of Agriculture Natural Resources Conservation Service and listed below will be considered for payment reimbursement. The Dust Control BMP(s) must be selected and approved by IID prior to implementation or July 1, 2013, whichever is earlier. Payment will be based on the Dust Control BMP Reimbursement Schedule issued annually by the IID.

1) Plan ahead to start with plenty of vegetation residue, and maintain as much residue on fallowed fields as possible. Residue is more effective for wind erosion protection if left standing.

2) Avoid any tillage if possible.

3) Avoid any traffic on the field or tillage when fields are extremely dry to avoid pulverization.

4) If residues are not adequate, either small grain can be seeded about the first of the year to take advantage of winter rains or soil stabilization chemicals may be applied to fallowed lands.

B. In addition to the above BMPs, in order to satisfy Imperial County dust control and mitigation requirements, Fallowing Party will comply with any lawful conditions required by the Imperial County Air Pollution Control District.

2. REPORTING REQUIREMENTS

Complete and return a Fallowing Program Mitigation Reporting Form (to be provided by IID) to the Manager of the Water Department of IID on or before July 31, 2013, and update the form before November 30, 2013, and July 31, 2014, verifying the method(s) used to satisfy the mitigation requirements set forth in Section 1 above and the total costs incurred by Fallowing Party therefore, including written documentation evidencing such costs.

EXHIBIT D

SCHEDULE OF EQUITABLE DISTRIBUTION APPORTIONMENT ASSIGNMENT AND PAYMENT DEADLINES

EVENT	DEADLINE
Assign, if not already deemed assigned, a proration of Fallowed Lands Annual Baseline (if less than 2013 Annual Apportionment) equal to the Fallowed Lands' prorated Baseline (Annual Baseline divided by twelve (12) and multiplied by the number of months fallowed in 2013) or a proration of Fallowed Lands 2013 Annual Apportionment (if less than Fallowed Lands Annual Baseline) equal to a proration of the Fallowed Lands' 2013 Annual Apportionment (calculated as the Fallowed Lands' 2013 Annual Apportionment divided by twelve (12) and multiplied by the number of months fallowed in 2013) . These assignments may also include any portion of Fallowing Party's 2013 Annual Apportionment from Fallowing Party's Non-Fallowed Lands or water purchased through the District Water Exchange or Agricultural Water Clearinghouse, as needed.	July 1, 2013
First payment by IID.	August 31, 2013
If 2013 SDI Declaration or Apportionment not terminated by November 1, 2013), assign additional portion of Fallowed Lands 2013 Annual Apportionment and/or additional portion of Fallowing Party's 2013 Annual Apportionment from Fallowing Party's Non-Fallowed Lands or water purchased through the District Water Exchange or Agricultural Water Clearinghouse, as needed, sufficient to make total 2013 assignment equal to the balance of the Fallowed Lands' prorated Baseline (Annual Baseline divided by twelve (12) and multiplied by the number of months fallowed in 2013).	November 30, 2013
Deemed assignment of the Fallowed Lands 2014 Annual Apportionment equal to 50% of Fallowed Lands Annual Baseline (if SDI Declaration or Annual Apportionment for 2014 is in effect).	January 1, 2014
Second payment by IID.	January 15, 2014
Third payment by IID.	August 31, 2014

APPENDIX 7

Letters re 2010 Temporary Storage of Entitlement Water in Salton Sea for Later Use as Mitigation Water

United States Department of the Interior

BUREAU OF RECLAMATION
Lower Colorado Regional Office
P.O. Box 61470
Boulder City, NV 89006-1470

IN REPLY REFER TO:
LC-4000
WTR 4.03

JUL 02 2013

Mr. Kevin E. Kelley
General Manager
Imperial Irrigation District
P.O. Box 937
Imperial, CA 92251-0937

Dear Mr. Kelley:

Reclamation has received your letter of June 28, 2013, and I appreciate your prompt and timely response to my letter of May 3, 2013, regarding the 2010 advance mitigation deliveries to the Salton Sea without conserving an equivalent amount of Colorado River water. As you are aware, these pre-deliveries have been the subject of much, often divisive, discussion among representatives of the Reclamation, Imperial Irrigation District (IID), the Basin States, and other agencies. I appreciate your desire and willingness on behalf of IID to move forward in a constructive manner to address and resolve this matter at this time.

Reclamation has reviewed the set of actions and timeline identified in your June 28th letter. We understand that IID is committing to create by conservation a total of 69,818 acre-feet through land fallowing to fully offset the 46,546 acre-feet of water pre-delivered in 2010. Of this total, 46,546 acre-feet will offset the depletion resulting from the 2010 pre-delivery and 23,272 acre-feet will meet the requirement for mitigation of the impacts to the Salton Sea due to the fallowing for the 46,546 acre-feet. IID is further committing to a two-year time window (2015 – 2016) to complete this conservation and delivery such that the total amount of 69,818 acre-feet would be conserved no later than December 31, 2016.

After consideration of your letter, Reclamation finds that the set of actions and timeline laid out by IID are credible and acceptable to Reclamation and constitute a commitment by IID to restore 46,546 acre-feet to the Colorado River system. However, several related issues, some of which you point out in your June 28th letter, need to be addressed here.

As you state in your June 28th letter, "IID believed in 2010 and continues to believe that its pre-delivery of mitigation water to the Salton Sea in 2010 was a necessary, appropriate and lawful exercise of its Colorado River water entitlement." Reclamation acknowledges IID's view. Nevertheless, Reclamation continues to stand firmly by our position that nothing in the Colorado River Water Delivery Agreement (CRWDA) or any other currently-existing contractual agreement entered into with Reclamation, on behalf of the Secretary, authorizes such advance

mitigation transfers. In the absence of authorization by the Secretary, it is our view that such advance mitigation transfers are not in compliance with Section 5 of the Boulder Canyon Project Act of 1928, or Article III(C) of the Consolidated Decree entered by the U.S. Supreme Court in *Arizona* v. *California*, 547 U.S. 150, 159-60.

Our legal positions differ, but we share a common goal of constructively resolving this matter and restoring water to the Colorado River system in a timely manner. We also share a common goal of improving the professional relationships and minimizing disputes among the parties to the CRWDA. Reclamation therefore expressly acknowledges that IID's identification of and implementation of this set of actions is not a concession by IID that the 2010 pre-delivery was inconsistent with the existing legal framework applicable to deliveries of Colorado River water. Although the resolution of this matter does not constitute a precedent, Reclamation does not expect this situation to arise again and continues to rely on the warrant in your November 7, 2012 letter that IID does "not envision any circumstance in which advance mitigation transfers to the Salton Sea (i.e., on a more rapid schedule than set forth in Exhibit B, col. 7 of the CRWDA) would be made by IID during the remaining period of such mitigation transfers (i.e., 2013 – 2017)."

In summary, while both IID and Reclamation reserve their respective and differing legal positions, I commend IID for submitting an acceptable set of actions and appropriately focusing on the operational and implementation aspects of prospective conservation by IID to address the 2010 pre-delivery to the Salton Sea.

I appreciate and fully agree with your statement in your June 28th letter that "these differences cannot be allowed to stand in the way of progress in ameliorating the potential shortage facing the Colorado River." I appreciate IID's commitment to consult with Reclamation and neighboring Lower Basin representatives and to monitor reservoir operating conditions and "consider modifications to this schedule should hydrologic conditions indicate that an acceleration of this schedule would preempt a shortage determination and, as such, warrant additional consideration." Reclamation is committed to work constructively with you to explore options that could be accelerated to help forestall or avoid reductions to other Colorado River water users if such need arises. Although as you note, IID faces significant challenges in the immediate future in meeting its various transfer and payback obligations, I also appreciate your commitment that, although excess conservation is unlikely in 2013 and 2014, IID is willing to consider applying a portion of any excess fallowed water toward the 69,818 acre-foot obligation, thereby further improving conditions for the Colorado River system. Accordingly, given that the ongoing 14-year drought we are experiencing is the worst in over a century, and there is no way of knowing when the drought may end, I strongly encourage IID to take every opportunity to conserve and restore this water to the system as soon as possible. As you know, the Lower Basin could be facing the first shortage reductions in modern history as soon as 2015. Reclamation will be pressing all Colorado River water users to find mechanisms to avoid or minimize the harmful consequences of reduced deliveries. In such circumstances, we expect IID to be a helpful and constructive partner in such efforts.

Again, thank you for your prompt and timely response to my May 3, 2013 letter and for your engagement and demonstrated commitment to improving conditions and relationships on the Colorado River. As you are aware, much of our success in the Colorado River Basin rests on professional and constructive working relationships among water users across multiple jurisdictions. We recognize IID's recent efforts to improve communication, cooperation, and collaboration with Reclamation and Basin State representatives and we look forward to continuing to work with you on this and other matters.

Sincerely,

Terrance J. Fulp, Ph.D.
Regional Director

cc: Ms. Tanya Trujillo
Executive Director
Colorado River Board
of California
770 Fairmont Avenue, Suite 100
Glendale, CA 91203-1035

Ms. Jayne Harkins, P.E.
Executive Director
Colorado River Commission
of Nevada
550 East Washington Avenue, Suite 3100
Las Vegas, NV 89101-1065

Ms. Sandra A. Fabritz-Whitney
Director
Arizona Department of Water Resources
3550 North Central Avenue, 2nd Floor
Phoenix, AZ 85012-2105

June 28, 2013

Mr. Terrance J. Fulp, Ph.D.
Regional Director
United States Bureau of Reclamation
Lower Colorado Regional Office
P.O. Box 61470
Boulder City, Colorado 89006-1470

Dear Dr. Fulp:

Subject: IID's Set of Actions for Contributing 46,546 acre-feet of Colorado River Water to the Colorado River System

I am in receipt of the letter from you on behalf of the Bureau of Reclamation, dated May 3, 2013, requesting the Imperial Irrigation District's set of actions and corresponding timeline to offset the 46,546 acre-feet of Colorado River water delivered as early mitigation water to the Salton Sea in 2010. As you know, IID delivered this volume of water from its 2010 consumptive use entitlement for temporary storage to meet its Salton Sea mitigation requirements in 2011 and the first half of 2012 and, among other reasons, to serve as a cost-savings mechanism to the Joint Powers Authority under the Quantification Settlement Agreement.

IID believed in 2010 and continues to believe that its pre-delivery of mitigation water to the Salton Sea in 2010 was a necessary, appropriate and lawful exercise of its Colorado River water entitlement. Reclamation has a differing perspective and has made this clear in correspondence to IID. Setting aside this fundamental disagreement for the time being, this letter responds to Reclamation's request and addresses how, when and under what conditions IID will contribute this volume of water to the Colorado River system, while also providing other salient facts that we believe are relevant to this matter.

At the outset, I want to emphasize that IID would not knowingly initiate an action that would tip the river system into a shortage earlier than might otherwise occur. The 2010 early Salton Sea delivery was intended to bolster the QSA and related agreements during a period of acute legal and financial uncertainty.

IID had hoped that, with the approval and implementation of the QSA in 2003, the beneficiaries of this QSA would bring a new focus and level of attention to the Salton Sea. Unfortunately this was not and has not been the case. No other water contractor or agency has stepped forward with a proactive initiative to resolve longer-term Salton Sea restoration deficiencies and potential mitigation funding shortfalls, nor has there been an identified viable alternative for addressing these issues. As you are more than aware, the Salton Sea serves not only as the terminus of IID's irrigation and drainage system, but has evolved into a critical avian habitat and flyway stopover. A hundred years in the making, the Salton Sea is now at a critical point in its evolution due to its ever-increasing salinity levels and declining inflows. It is clear to IID that the long-term wellbeing of the Salton Sea and its surrounding communities is not only the linchpin of IID's water conservation and transfer programs, but the litmus test by which the longevity of the QSA must be measured. You should know that IID intends to do what it believes to be necessary, appropriate and lawful to not only protect the health of the Salton Sea and the region, but to safeguard the district's senior water rights.

At the same time, IID is part of the community of Colorado River water users and is cognizant of current hydrologic conditions and reservoir elevations. For this reason, IID intends to work with its transfer partners and Reclamation to continue to promote, as stated in your May 3, 2013 letter, "prudent water management and continued viability of the QSA and the CRWDA."

Your letter is premised on Reclamation's belief that the 2010 pre-delivery of mitigation water to the Salton Sea "did not *appear* to fit into the existing legal framework applicable to deliveries of Colorado River water." (Emphasis added.) For its part, IID disagrees with this view and has consistently pointed to the legal underpinnings on which it based its action.[1] Even so, these differences in legal positions cannot be allowed to stand in the way of progress in ameliorating the potential shortage facing the Colorado River. The importance of moving forward in these times of extreme drought necessitates setting aside legal differences for another day. Reclamation Commissioner Mike Conner succinctly captured this viewpoint in his November 13, 2012 letter that concludes, "In this regard, Reclamation and IID will simply have to agree to disagree."

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[1] See previous IID letters to Reclamation dated September 20, 2010, October 5, 2010, January 20, 2011, and November 7, 2012.

To this end, IID will offset its 2010 pre-delivery of 46,546 acre-feet to the Salton Sea by fallowing agricultural lands to generate this conserved water. However, due to the additional mitigation requirements necessary to meet the "bucket-for-bucket" Salton Sea mitigation obligation required by the California State Water Resources Control Board, IID must fallow for more than the 46,546 acre-feet amount of water. IID must create a total of 69,818 acre-feet of fallowed water in order to offset the 46,546 acre-feet of water pre-delivered in 2010 and to provide for another 23,272 acre-feet of conserved water. This additional 23,272 acre-feet of conserved water is required to be delivered to the Salton Sea for mitigation of the impacts to the Salton Sea due to the fallowing for the 46,546 acre-feet of water pre-delivered in 2010.

Given that IID has already completed its 2013 contracting process for its 2013-2014 fallowing program (recall that IID's fallowing programs typically run July 1 of one year through June 30 of the next year to coincide with crop leases and local farming practices), and taking into account IID's 210,448 acre-feet payback balance obligations and its 417,000 acre-feet of additional conservation obligations in 2013 and 2014, the district proposes a two-year window (2015-2016) to complete this supplemental conservation and delivery by splitting the fallowing and mitigation delivery obligations proportionately over these two years, such that the set of actions described above would be completed no later than December 31, 2016.

IID's willingness to voluntarily implement this set of actions is, however, firmly grounded in two fundamental pre-conditions: (1) Reclamation must acknowledge that while it may disagree, IID continues to maintain its legal position that the 2010 pre-delivery was necessary, appropriate and lawful, *and* (2) Reclamation must agree that IID's implementation of this set of actions is not a concession by IID that the pre-delivery was inconsistent with the existing legal framework applicable to deliveries of Colorado River water.

In summary, it is IID's perspective and legal position that the 2010 pre-delivery of Salton Sea mitigation water was necessary, appropriate and lawful and that the set of actions and timeline above are part of an effort by IID to be a cooperative Colorado River water user and to properly manage its water resources during an unprecedented drought. By implementing actions intended to slow the decline of reservoir elevations and system storage, IID intends to do its part to forestall forecasted shortage determinations while the reservoir storage volumes have time to recover. In turn, IID is hopeful that this set of actions will open the door to additional dialogue with Reclamation and the community of Colorado River water users regarding the critical importance of the Salton Sea to not only our local communities, but to the basin-wide interests benefiting from and concerned with the long-term viability of the CRWDA and the QSA.

IID is confident that the conservation methodology and schedule outlined above satisfies Reclamation's request for a "credible set of actions and a definitive timeline." IID intends to work with Reclamation as it moves forward to determine specific calendar year schedules and consumptive use reductions to include in its annual water orders. IID also commits to consulting with Reclamation and neighboring Lower Basin representatives to monitor reservoir operating conditions, and will consider modifications to this schedule should hydrologic conditions indicate that an acceleration would preempt a shortage determination and, as such, warrant additional consideration. Moreover, although IID's conservation and payback requirements for 2013 and 2014 are substantial, such that excess conservation is unlikely, as upcoming fallowing program contracts are finalized IID will consider, at its own discretion, applying a portion of any excess fallowed water toward the 69,818 acre-feet of supplemental fallowing needed to offset the 2010 Salton Sea mitigation water pre-delivery.

In my view, IID's pre-delivery of mitigation water to the Salton Sea in 2010 has become a needless distraction from the very real problems we now confront with respect to the current hydrology, Colorado River operations and management, the future of the Salton Sea and the durability of the CRWDA and the QSA. I believe that by implementing additional fallowing within IID in 2015 and 2016, we may best move forward to address these challenges in a collaborative manner. I look forward to your response and to centering future discussions on issues of critical importance to advancing the common interests of our agencies.

Sincerely,

Kevin E. Kelley
General Manager

United States Department of the Interior

BUREAU OF RECLAMATION
Lower Colorado Regional Office
P.O. Box 61470
Boulder City, NV 89006-1470

IN REPLY REFER TO:
LC-4000
ADM-1.10

MAY 03 2013

Mr. Kevin E. Kelley
General Manager
Imperial Irrigation District
P.O. Box 937
Imperial, CA 92251

Dear Mr. Kelley:

I am writing to follow up on Commissioner Connor and my visit to your offices on February 20, 2013, during which we discussed a number of matters related to the ongoing implementation of the Colorado River Water Delivery Agreement (CRWDA) and the California Quantification Settlement Agreement (QSA) by the Imperial Irrigation District (IID). Commissioner Connor and I valued our visit to IID and appreciated learning more about the initiatives that IID has underway to improve its ability to reliably achieve the annual water conservation and transfer amounts set forth in the CRWDA.

During our recent meeting on February 20th, we discussed and agreed to work together this spring on a number of pending matters. In particular, we discussed working together to address an area of concern that dates back to 2010.

As you know, in addition to the 35,000 acre-foot amount identified in the CRWDA for the 2010 calendar year,[1] IID also delivered 46,546 acre-feet of Colorado River water to the Salton Sea with the stated intention of utilizing that water to meet Salton Sea future mitigation requirements for 2011 and half of 2012. While the Bureau of Reclamation recognizes the importance to IID and its surrounding communities of addressing the complex environmental problems related to the decline in the level of the Salton Sea, this unilateral action by IID is the subject of letters dated October 14, 2010, December 15, 2010, June 29, 2011, and October 11, 2011, that IID has received from the Bureau of Reclamation's Lower Colorado Regional Director and is the subject of a letter dated November 13, 2012, that IID has received from Reclamation's Commissioner. This action has also been the subject of numerous meetings held between Reclamation and IID, often including representatives of other California water agencies and, at times, the Colorado River Basin States.

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[1] *See* CRWDA at Exhibit B, col. 7 (identifying annual quantities of water related to San Diego County Water Authority (SDCWA) Mitigation Transfer for the years 2003-2017). As referenced in the CRWDA, this amount of water "will only be from non-Colorado River sources and these amounts may be provided by exchange for Colorado River water."

Reclamation recognizes that IID is aware of the concerns expressed throughout the Colorado River water community with respect to IID's 2010 actions. Reclamation further recognizes and appreciates that IID has now expressed its willingness both to avoid similar divisive actions in the future and to work together to resolve the matter regarding the 2010 actions. In a November 7, 2012, letter to Reclamation's Commissioner, IID warranted that it did "not envision any circumstance in which advance mitigation transfers to Salton Sea (i.e., on a more rapid schedule than set forth in Exhibit B, col. 7 of the CRWDA) would be made by IID during the remaining period of such mitigation transfers (i.e., 2013-2017)". Further, IID stated that "should IID obtain [the State Water Resource Control Board's] approval of its pending petition to eliminate delivery of mitigation water to the Salton Sea, the district will, taking into account Colorado River hydrology and all other existing facts and circumstances, *take appropriate actions to reduce its future Colorado River diversions to make up for the 2010 advanced mitigation deliveries.*" (Emphasis added.) Reclamation appreciates that IID has made this commitment in order to "ensure the continued effective implementation of the QSA," as the November 7 letter states. We were particularly encouraged that in our February 20th meeting between Reclamation and IID, all participants recognized the importance of working together with respect to the development of a credible set of actions to restore the water to the system in a timely manner.

Because IID's actions in 2010 did not appear to fit into the existing legal framework applicable to deliveries of Colorado River water, the appropriate accounting for this water has been a matter of ongoing concern. Reclamation's water accounting reports for calendar years 2010 and 2011, filed with the United States Supreme Court under *Arizona v. California,* informed the court that the appropriate accounting for IID's 2010 action was under review and would be reflected in a future report.

As we discussed, given the number of outstanding and anticipated issues that IID would like to work on with Reclamation and the other CRWDA parties (as well as the larger group of Colorado River stakeholders), Reclamation believes it is an appropriate time to bring certainty to resolution of IID's 2010 delivery of Colorado River water to the Salton Sea. The water accounting report for calendar year 2012, to be issued in mid-May of 2013, will reflect that IID delivered 46,546 acre-feet of Colorado River water to the Salton Sea with the stated intention to store the water for 2011 and 2012 mitigation requirements, but did not in fact conserve an equivalent amount of water in 2011 or 2012 to support the pre-delivery. The report will reflect that IID's 2010 actions depleted the Colorado River system in the amount of 46,546 acre-feet.

The 46,546 acre-foot depletion of the Colorado River system requires prompt responsive action to address this situation. In the November 7, 2012, letter, IID premised its efforts to restore the water upon the successful completion of the petition IID has pending before the State Water Resources Control Board (SWRCB). Given the lack of certainty as to the timing and outcome of that process, we do not believe that a credible set of actions to address the 2010 delivery to the Salton Sea can rely exclusively on that process. Moreover, as the SWRCB process is not proceeding at the rapid pace once anticipated for 2013, tying prompt responsive action solely to the SWRCB process will not achieve the level of certainty required to reach a prompt and definitive resolution of this matter. Issuance of the 2012 water accounting report is imminent and the time has now come for IID to prepare a definitive, credible set of actions, irrespective of

the status of the pending SWRCB process, laying out the means by which the Colorado River system will be made whole, together with a definitive timeline to achieve this result. As we discussed in our February 20th meeting, we want to reemphasize our commitment to work with you on the development of this set of actions.

A depletion of this magnitude, without prompt responsive action, has the potential to tip the system into shortage earlier than might otherwise occur, with IID at the focal point of such a destabilizing event. This will not help us to achieve our mutual goals of prudent water management and the continued viability of the QSA and the CRWDA. We therefore request that IID present to Reclamation by June 30 of this year a credible set of actions and a definitive timeline to make up for the 2010 advanced mitigation deliveries of 46,546 acre-feet.

Reclamation appreciates IID's desire and willingness to move forward in a constructive manner on this matter as well as on a broad range of Colorado River issues. I want to assure you of our willingness and commitment to work with you and your staff on all of the challenges we face on the Colorado River. Thank you for your engagement on this important matter.

Sincerely,

Terrance J. Fulp, Ph.D.
Regional Director

cc: Ms. Tanya M. Trujillo
Executive Director
Colorado River Board of California
770 Fairmont Avenue, Suite 100
Glendale, CA 91203-1035

Jayne Harkins, P.E.
Executive Director
Colorado River Commission of Nevada
555 East Washington Avenue, Suite 3100
Las Vegas, NV 89101-106

Ms. Sandra A. Fabritz-Whitney
Director
Arizona Department of Water Resources
3550 North Central Avenue
Phoenix, AZ 85012-2105

United States Department of the Interior

BUREAU OF RECLAMATION
Washington, DC 20240

IN REPLY REFER TO:

NOV 13 2012

Mr. Kevin E. Kelley
General Manager
Imperial Irrigation District
P.O. Box 937
Imperial, California 92251

Dear Mr. Kelley:

Thank you for your letter of November 7, 2012, regarding ongoing implementation of the Colorado River Water Delivery Agreement (CRWDA) and for taking the time to discuss various Colorado River issues on November 2nd during the National Water Resources Association (NWRA) conference. I particularly appreciated your commitment to prioritize working together in partnership on the various issues that are under active discussion and engagement in the Lower Basin.

As you note in your letter, Reclamation has been actively working with all parties to this historic agreement to assess opportunities for actions that are acceptable to all of the parties to that agreement to ensure that the identified conservation and transfer actions are fully implemented on the schedule set forth in the CRWDA.

In your letter you make a commitment that given the recent actions initiated by the Imperial Irrigation District (IID), further advance mitigation transfers of the Salton Sea Mitigation Transfer set forth in Col. 7 of Ex. B to the CRWDA are not envisioned to take place during the period from 2013-17. Your letter also addresses IID's perspective on the need and timing for actions to address the advance delivery that took place in 2010. Your letter also reiterates IID's position, consistent with previous correspondence, that the advance transfer that IID initiated in 2010 was both legal and appropriate under applicable agreements and law.

We appreciate your commitments in this regard, but want to clearly establish our position with regard to any potential future advance deliveries: Nothing in the CRWDA or any other currently-existing contractual agreement entered into with Reclamation, on behalf of the Secretary, authorizes such advance mitigation transfers. In the absence of authorization by the Secretary, it is our view that any such future advance mitigation transfers would not be in compliance with Section 5 of the Boulder Canyon Project Act of 1928, or Article III(C) of the Consolidated Decree entered by the U.S. Supreme Court in Arizona v. California, 547 U.S. 150, 159-60. In this regard, Reclamation and IID will simply have to agree to disagree. Nonetheless, we appreciate the effort and initiatives that IID is taking to secure a more informed and effective mitigation strategy in the years ahead. Initial reports from the U.S. Fish and Wildlife Service are encouraging, and we recognize all of the enormous effort by IID and other entities that is currently underway.

On behalf of Reclamation, I want to memorialize what I told you in San Diego during NWRA: I appreciate IID's efforts in recent months to work in a collaborative manner with Reclamation and other lower Basin stakeholders to address our concerns over implementation of the CRWDA. Assuming the continuation of such collaborative efforts, Reclamation anticipates ongoing cooperation in working closely with IID during this critical time period so that we can effectively address the array of issues that are ongoing with respect to the CRWDA. Significantly, we believe progress has been made in recent months with the California parties to the CRWDA to identify potential approaches and actions that will enhance the successful implementation of the transfers and actions necessary for California to continue to live within its apportionment under the Law of the River. The success of the CRWDA is all the more essential given historic drought in the Colorado River Basin since 1999, and the challenges we face in the future associated with the impacts of climate change and other pressures on flows and water availability in the Basin.

Sincerely,

Michael L. Connor
Commissioner

DISTRICT WATER POWER
IID
A century of service.
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November 7, 2012

Michael L. Connor, Commissioner
U.S. Department of the Interior
Bureau of Reclamation
1849 C Street, NW
Washington, DC 20240-0001

Dear Commissioner Connor:

Thank you for taking the time to visit with me and other representatives of the Imperial Irrigation District during the National Water Resources Association conference last week in San Diego. I am aware that you have received input and expressions of concern from a number of entities, including Colorado River contractors in Arizona and Nevada, regarding IID's previous and ongoing actions related to implementation of the Quantification Settlement Agreement.

Over the past year, the Imperial Irrigation District has taken a number of essential actions to ensure full implementation of the Colorado River Water Delivery Agreement, QSA and other related state and federal agreements. These actions include the district's work with the U.S. Fish and Wildlife Service in furtherance of adoption of a Habitat Conservation Plan under the Endangered Species Act, as well as IID's pending petition before the California State Water Resources Control Board. In addition, IID has been working directly with Regional Director Terry Fulp and members of his staff of the Lower Colorado regional office in a constructive and cooperative fashion to address implementation of the transfers and other actions addressed in the CRWDA. The fact is, IID is working diligently to fully implement its obligations under the CRWDA, and is committed to continuing to do so.

In 2010, IID took action that it believes was both legal and necessary by providing water to the Salton Sea in accordance with the CRWDA in a manner and on an advance schedule designed to conserve financial resources at a time of litigation uncertainty regarding proceedings in California courts. In prior correspondence attached hereto, the district outlined the basis for the legal and policy appropriateness of such advance deliveries. At the time IID believed its actions were needed to help to ensure the continued viability of the QSA, and that remains its position. However, the district is in a much different setting today.

IMPERIAL IRRIGATION DISTRICT
333 E. BARIONI BLVD. • P.O. BOX 937 • IMPERIAL, CA 92251
TELEPHONE (760) 339-9477 • FAX (760) 339-9392

Given the actions that IID has initiated to date and the nature of the proceedings pending before the SWRCB, I can warrant that I do not envision any circumstance in which advance mitigation transfers to Salton Sea (i.e., on a more rapid schedule than set forth in Exhibit B, col. 7 of the CRWDA) would be made by IID during the remaining period of such mitigation transfers (i.e., 2013-2017). At the same time, IID fully reserves all legal rights and defenses regarding the appropriateness of making such advance mitigation transfers under the CRWDA, QSA and applicable provisions of state and federal law.

Moreover, should IID obtain SWRCB's approval of its pending petition to eliminate delivery of mitigation water to the Salton Sea, the district will, taking into account Colorado River hydrology and all other existing facts and circumstances, take appropriate actions to reduce its future Colorado River diversions to make up for the 2010 advanced mitigation deliveries.

Finally, as we discussed, IID will continue to work with you and your staff, and is fully committed to resolving all outstanding issues related to its transfer obligations under the CRWDA and QSA in a timely manner. By doing so, we will help to ensure the continued effective implementation of the QSA.

Sincerely,

Kevin E. Kelley
General Manager

United States Department of the Interior

BUREAU OF RECLAMATION
Lower Colorado Regional Office
P.O. Box 61470
Boulder City, NV 89006-1470

OCT 11 2011

IN REPLY REFER TO:
LC-4000
WTR 4.03

VIA ELECTRONIC MAIL AND U.S. MAIL

Mr. Kevin Kelley
General Manager
Imperial Irrigation District
P.O. Box 937
Imperial, CA 92251

Ms. Maureen Stapleton
General Manager
San Diego County Water Authority
4677 Overland Avenue
San Diego, CA 92123

Mr. Jeffrey Kightlinger
General Manager
Metropolitan Water District of
Southern California
P.O. Box 54153
Los Angeles, CA 90012

Mr. Steve B. Robbins
General Manager
Coachella Valley Water District
P.O. Box 1058
Coachella, CA 92236

Dear Colorado River Water Delivery Agreement Parties:

This letter addresses our recent and ongoing discussions related to the implementation of the Colorado River Water Delivery Agreement (CRWDA). As noted in my previous letter of June 29, 2011, in the fall of 2010 the Imperial Irrigation District (IID) informed the Bureau of Reclamation that Colorado River water had been delivered by IID directly to the Salton Sea with the stated intention to store the water there, to be subsequently exchanged and charged against mitigation obligations identified in the CRWDA during the years of 2011 and 2012. IID indicated it did not intend to conserve an amount of water equivalent to that delivered to the Salton Sea.

IID's unilateral actions, and the difficulties inherent in accounting for these actions, led to a series of meetings among IID, the Coachella Valley Water District (CVWD), the Metropolitan Water District of Southern California (MWD), the San Diego County Water Authority (SDCWA), and Reclamation (the parties to the CRWDA), with the first such meeting held November 11, 2010, and the most recent held September 14, 2011. The focus of the discussions among the CRWDA parties throughout the course of these meetings has been to seek the potential development of an approach that would allow all parties to the CRWDA to move forward in a manner that preserves the important elements and benefits of the CRWDA while addressing financial issues related to the state Quantification Settlement Agreement (QSA) in light of judicial decisions and ongoing judicial proceedings in California State court.

At this time, we understand and recognize that the IID has determined that it believes that the most effective and prudent approach is to revisit certain mitigation actions contemplated under

the CRWDA. Specifically, we understand that IID's approach would, "if duly supported by proper environmental review," lead to "elimination of the requirement that mitigation water be delivered to the Salton Sea between 2014 and 2017, and that instead habitat creation and air mitigation projects of superior environmental benefit be substituted." In order to implement this approach, IID has identified state[1] and Federal processes it intends to pursue, and has indicated that as an important component of such efforts, it intends to address compliance with the Endangered Species Act (ESA) through modification and completion of a Habitat Conservation Plan (HCP) pursuant to Section 10 of the ESA. Given IID's conclusion that this is the most appropriate and effective path forward, we recognize and support the need for thorough and proper environmental review of this revised approach, and recognize that such a thorough analysis will be essential for the successful completion of an HCP. Development and analysis of this HCP will, of course, involve public processes and robust review under the National Environmental Policy Act. Lead responsibility for review and approval of HCPs rests with the U.S. Fish and Wildlife Service, and Reclamation stands ready to work with and assist the FWS in this effort, as appropriate, in order to ensure development of a viable and implementable conservation plan.

IID has worked to design an approach that it believes would better utilize resources as part of proposed projects that conserve wildlife species, preserve habitat, and mitigate air quality impacts. In addition to this approach, an appropriate range of alternatives should be identified and analyzed. We believe that an appropriate range of alternatives should not preclude Salton Sea restoration options and should consider the work at the Salton Sea that the State of California has underway.

A thorough and rigorous analysis is particularly necessary in light of concerns and objections that have been raised by the CVWD. At this time, we understand that CVWD opposes efforts to redefine mitigation impacts of the CRWDA transfers to the Salton Sea during the 2014 through 2017 timeframe. We had hoped that the CRWDA Parties would have been able to identify a consensus path forward, and regret the current lack of consensus on this matter. It is our hope, however, that through the environmental and public review processes initiated by IID, which we understand will include review of an appropriate range of potential actions and modifications, an approach may yet be identified that would again achieve a four agency consensus as was the case in 2003. Accordingly, Reclamation's support for a thorough and prompt environmental review is premised, in part, on the potential that a viable and implementable consensus approach may be reached during the upcoming public environmental review processes, which will include review of an appropriate range of actions and modifications.

Reclamation intends to continue to administer and implement the binding provisions of the CRWDA. Reclamation continues to believe that the parties to the CRWDA must continue to

[1] We understand that, in IID's view, an amendment of a State Water Resources Control Board order will be required. Reclamation does not intend by this letter to express any view with respect to state law or its alleged or purported requirements or with respect to the jurisdiction of state agencies over any such alleged or purported requirements.

work toward identifying consensus approaches to the issues under discussion and further believes that this effort, and the outcome of the anticipated environmental review processes, will likely require flexibility in the positions espoused by particular parties to date. Whether ultimately, the path forward consists of the implementation of an existing or refined proposal, or the melding or modification of existing or new proposals, Reclamation intends to continue to work with the CRWDA parties to achieve consensus and a full and complete resolution of the difficult issues now before us.

Sincerely,

Lorri Gray-Lee

Lorri Gray-Lee
Regional Director

United States Department of the Interior

BUREAU OF RECLAMATION
Lower Colorado Regional Office
P.O. Box 61470
Boulder City, NV 89006-1470

IN REPLY REFER TO:
LC-4000
ADM-1.10

JUN 29 2011

Mr. Kevin Kelley
General Manager
Imperial Irrigation District
P.O. Box 937
Imperial, CA 92251

Ms. Maureen Stapleton
General Manager
San Diego County Water Authority
4677 Overland Ave.
San Diego, CA 92123

Mr. Jeffrey Kightlinger
General Manager
The Metropolitan Water District
of Southern California
P.O. Box 54153
Los Angeles, CA 90012

Mr. Steve B. Robbins
General Manager
Coachella Valley Water District
P.O. Box 1058
Coachella, CA 92236

Dear Colorado River Water Delivery Agreement Parties:

In the fall of 2010 the Imperial Irrigation District (IID) informed the Bureau of Reclamation that Colorado River water had been delivered by IID directly to the Salton Sea with the intention to store the water there, to be subsequently exchanged and charged against mitigation obligations in 2011 and 2012. IID indicated that, in light of pending litigation and a perceived potential for financial exposure, IID did not intend to conserve an amount of water equivalent to that delivered to the Salton Sea.

IID's unilateral action drew the attention of other California water agencies and the attention of stakeholders throughout the Colorado River Basin. A series of meetings began among IID, the Coachella Valley Water District (CVWD), The Metropolitan Water District of Southern California (MWD), the San Diego County Water Authority (SDCWA) and Reclamation (the parties to the Colorado River Water Delivery Agreement (CRWDA)), with the first such meeting held November 11, 2010, and the most recent held June 16, 2011. The parties began the discussions with each agency expressing a commitment to the long-term viability of the CRWDA and each expressing a desire for a consensual resolution to the issues at hand.

Reclamation recognized the need to appropriately account for the water IID delivered to the Salton Sea. Reclamation is extremely cognizant of the overarching federal responsibility to prepare complete, detailed, and accurate records relating to Colorado River water, a responsibility mandated by the United States Supreme Court and recognized by the California water agencies. As stated in an October 14, 2010 letter to Brian Brady, Reclamation does not believe it is appropriate to account for Colorado River water in the manner proposed by IID in a letter from Brian Brady dated September 20, 2010. In an effort to facilitate good faith discussions and to bring structure to the process, Reclamation provided notice by letter dated

December 15, 2010, that if consensus among the CRWDA parties was not reached, Reclamation intended to make a determination on or before July 1, 2011, relating to the appropriate accounting for IID's delivery of Colorado River water to the Salton Sea in 2010.
In the ensuing six months, Reclamation has met repeatedly with IID, CVWD, MWD, and SDCWA, collectively and individually. Reclamation has also routinely consulted with representatives of the Basin States, in light of the importance of the CRWDA and the engagement of the Basin States on these issues. In the course of the many meetings, and the multiple interstitial telephone conferences with your agencies, Reclamation has developed a strong appreciation of the perspectives of each agency, as well as the complexity of the underlying issues, including the legal, financial, political, and environmental nuances within which a resolution must be constructed.

In recent meetings a preliminary approach to a potentially sustainable and implementable solution has begun to take shape. We recognize that each agency is devoting extraordinary resources to analyzing an approach which has the strong potential to both resolve the short-term issue of the 2010 delivery to the Salton Sea and the long-term issue of the continued viability of both the CRWDA and the host of agreements which compromise the California Quantification (comprise? kek) Settlement Agreement. Reclamation believes such an approach, if adopted and implemented in a timely fashion, may ultimately be incorporated into the decree accounting reports. In light of the need for additional work on these issues, Reclamation is suspending the July 1 deadline set in the December 15, 2010 letter.

Reclamation recognizes that IID, CVWD, MWD, and SDCWA speak through the decisions of their respective boards and further recognizes that different boards may have widely differing views on the elements of a proposal developed in the course of these negotiations. Reclamation welcomes and encourages board member participation in these negotiations. Such participation in the late 1990s and early 2000s during the development of the CRWDA proved to be invaluable. In Reclamation's view, the current discussions would benefit from the free exchange of information and ideas between and among the California water agencies, representatives from their respective boards, and Reclamation staff, as strategies are developed to achieve and implement a consensual resolution to the issues at hand.

Reclamation also recognizes the existence of numerous legal, financial, political, and environmental steps which must be undertaken and that significant additional work remains ahead before any final decisions may be made on the issues under consideration. For this reason, Reclamation will make a periodic assessment of the progress made in these efforts. If at any point, in Reclamation's judgment, it appears that the parties no longer desire to move forward or are unable to move forward to finalize and implement a consensus resolution, Reclamation will provide notice to IID, CVWD, MWD, and SDCWA of its intention to make a final accounting determination relating to the 2010 delivery of Colorado River water to the Salton Sea.

Reclamation is encouraged by the demonstrated dedication of the group as a whole to achieving a workable resolution that supports the continued viability of the agreements reached in 2003. These agreements are vital to the continued well being of southern California and vital, in particular, to the stability of CVWD and SDCWA's future water supplies. Reclamation will continue to support the efforts of the California water agencies to provide further stability for these essential agreements.

Should you have questions, please contact me at 702-293-8411.

Sincerely,

Lorri Gray-Lee

Lorri Gray-Lee
Regional Director

United States Department of the Interior

BUREAU OF RECLAMATION
Lower Colorado Regional Office
P.O. Box 61470
Boulder City, NV 89006-1470

TAKE PRIDE IN AMERICA

IN REPLY REFER TO:

LC-4000
ADM-1.10

cc Legal
Ina Shields

FEB 07 2011

Ms. Malissa Hathaway McKeith
Lewis Brisbois Bisgaard & Smith, LLP
221 North Figueroa Street, Suite 1200
Los Angeles, CA 90012

Subject: IID Mitigation Water in the Salton Sea

Dear Ms. McKeith:

Thank you for your letter of October 29, 2010, regarding the Salton Sea and the Quantification Settlement Agreement (QSA).

I appreciate the concern that you have expressed regarding the mitigation for the Salton Sea under the suite of QSA agreements. The Bureau of Reclamation will continue to work with the parties to the Colorado River Water Delivery Agreement (CRWDA) to ensure that the mitigation commitments, which California entities have assumed under the various QSA arrangements, are achieved consistent with the CRWDA, the QSA agreements, and the Law of the River.

Should you have questions, please contact me at 702-293-8411.

Sincerely,

Lorri Gray-Lee

Lorri Gray-Lee
Regional Director

cc: Mr. Kevin Kelley
Acting General Manager
Imperial Irrigation District
P.O. Box 937
Imperial, CA 92251

Mr. Jeff Kightlinger
General Manager
The Metropolitan Water District
of Southern California
P.O. Box 54153
Los Angeles, CA 90054-0153

Continued on next page.

cc: Continued from previous page.

Mr. Steven Robbins
General Manager – Chief Engineer
Coachella Valley Water District
P.O. Box 1058
Coachella, CA 92236-1058

Ms. Maureen A. Stapleton
General Manager
San Diego County Water Authority
4677 Overland Avenue
San Diego, CA 92123-1233

Mr. Chris Harris
Acting Executive Director
Colorado River Board of California
770 Fairmont Avenue, Suite
Glendale, CA 91203-1035

United States Department of the Interior

BUREAU OF RECLAMATION
Lower Colorado Regional Office
P.O. Box 61470
Boulder City, NV 89006-1470

TAKE PRIDE IN AMERICA

IN REPLY REFER TO:

LC-4000
ADM-1.10

FEB 07 2011

Ms. Jennifer Gimbel
Director
Colorado River Conservation Board
Department of Natural Resources
1313 Sherman Street, Room 721
Denver, CO 80203

Subject: IID Salton Sea Mitigation Water

Dear Ms. Gimbel:

Thank you for your letter that was received in our office via facsimile on November 10, 2010, regarding the Imperial Irrigation District's (IID) proposed delivery of an additional 41,250 acre-feet of Colorado River water to the Salton Sea during 2010. At this point, the additional water has been delivered by IID directly to the Salton Sea with IID asserting an intention to store the water there, to be subsequently exchanged and accounted toward mitigation obligations in 2011 and 2012. It does not appear that IID will conserve an equivalent amount of water.

We are working with the parties to the Colorado River Water Delivery Agreement (CRWDA) to ensure that the mitigation commitments California entities have assumed under the various Quantification Settlement Agreement (QSA) agreements are achieved consistent with the CRWDA, the QSA agreements, and the Law of the River. The Bureau of Reclamation is participating in meetings with the CRWDA parties to address issues relating to IID's delivery of Colorado River water to the Salton Sea in 2010.

Enclosed for your information is a copy of a December 15, 2010, letter I sent to the CRWDA parties containing a footnote that Reclamation will include in the 2010 Colorado River Accounting and Water Use Report regarding IID's delivery of an additional 41,250 acre-feet to the Salton Sea in 2010. The letter also includes my commitment to make a determination on or before July 1, 2011, relating to the appropriate accounting for the 41,250 acre-feet of Colorado River water IID delivered to the Salton Sea. This deadline should provide sufficient time to resolve the issue in a timely manner so as to not affect other operational decisions on the Colorado River.

Also enclosed is a copy of a January 3, 2011, letter I sent to IID indicating that IID may be required to repay the 41,250 acre-feet to the Colorado River system if this issue cannot be resolved.

Please feel free to contact me at 702-293-8411 if you have questions.

Sincerely,

Lorri Gray-Lee
Regional Director

Enclosures-2

cc: Mr. Michael Connor
Commissioner
Bureau of Reclamation
1849 C Street NW
Washington DC 20240-0001

Mr. Chris Harris
Acting Executive Director
Colorado River Board of California
770 Fairmont Avenue, Suite 100
Glendale, CA 91203-1035

Ms. Patricia Mulroy
General Manager
Southern Nevada Water Authority
1001 South Valley View Boulevard
Las Vegas, NV 89153

Ms. Maureen Stapleton
General Manager
San Diego County Water Authority
4677 Overland Avenue
San Diego, CA 92123-1233

Mr. Don Ostler
Executive Director/Secretary
Upper Colorado River Commission
355 South 400 East
Salt Lake City, UT 84111-2969

Ms. Sandra A. Fabritz-Whitney
Acting Director
Arizona Department of Water Resources
3550 North Central Avenue
Phoenix, AZ 85012-2105

Mr. Jeffery Kightlinger
General Manager
The Metropolitan Water District
of Southern California
P.O. Box 54153
Los Angeles, CA 90054-0153

Mr. Wally Leimgruber
District 5 Supervisor
County of Imperial
940 Main Street, Suite 209
El Centro, CA 92243-2871

Continued on next page.

cc: Continued from previous page.

Mr. Steven Robbins
General Manager – Chief Engineer
Coachella Valley Water District
P.O. Box 1058
Coachella, CA 92236-1058

Mr. Mark Cowin
Director
California Department of Water Resources
P.O. Box 942836, Room 1115-1
Sacramento, CA 94236-0001

Mr. John D'Antonio
New Mexico State Engineer
P.O. Box 25102
Santa Fe, NM 87504-5102

Mr. Pat Tyrrell
State Engineer
Wyoming State Engineer's Office
122 W. 24th Street
Herschler Bldg 4E
Cheyenne, WY 82002

Mr. George Caan
Director
Colorado River Commission of Nevada
555 East Washington Ave, Suite 3100
Las Vegas, NV 89101-1048

Ms. Victoria Whitney
Deputy Director
State Water Resources Control Board
P.O. Box 100
Sacramento, CA 95814

Mr. Curt Taucher
Regional Manager
California Department of Fish and Game
Inland Deserts-Eastern Sierra Region
3602 Inland Empire Boulevard, Suite C-220
Ontario, CA 91764

Mr. Dennis Strong
Director
Division of Water Resources
1594 West North Temple, Suite 310
Salt Lake City, UT 84114-6201

Mr. Kevin Kelley
Acting General Manager
Imperial Irrigation District
P.O. Box 937
Imperial, CA 92251

United States Department of the Interior

BUREAU OF RECLAMATION
Lower Colorado Regional Office
P.O. Box 61470
Boulder City, NV 89006-1470

TAKE PRIDE IN AMERICA

IN REPLY REFER TO:
LC-4000
ADM-1.10

December 15, 2010

Dr. Brian Brady
General Manager
Imperial Irrigation District
P.O. Box 937
Imperial, CA 92251

Ms. Maureen Stapleton
General Manager
San Diego County Water Authority
4677 Overland Ave.
San Diego, CA 92123

Mr. Jeffrey Kightlinger
General Manager
The Metropolitan Water District
of Southern California
P.O. Box 54153
Los Angeles, CA 90012

Mr. Steve B. Robbins
General Manager
Coachella Valley Water District
P.O. Box 1058
Coachella, CA 92236

Subject: Footnote for 2010 Water Accounting Report

Dear Colorado River Water Delivery Agreement Parties:

The Bureau of Reclamation is participating with you in a series of meetings involving Imperial Irrigation District (IID), Coachella Valley Water District, The Metropolitan Water District of Southern California, and the San Diego County Water Authority (collectively, Colorado River Water Delivery Agreement [CRWDA] Parties) to address issues relating to IID's delivery of Colorado River water to the Salton Sea in 2010.

During the course of these meetings it has become clear to the CRWDA Parties that the ability to reach a consensus resolution on short term and long term issues arising from or relating to the IID action will be enhanced by a clear understanding among the CRWDA Parties as to the timing of the Federal determination relating to the IID action. Reclamation believes it appropriate to state its intentions with respect to such determination facilitating continued good faith discussions.

First, unless consensus is earlier reached among the CRWDA Parties (including the United States), Reclamation will include in the 2010 Colorado River Accounting and Water Use Report a new footnote relating to IID's 2010 Colorado River diversions. Specifically, line items relating to mitigation deliveries to the Salton Sea will be annotated with the following footnote, with the actual numbers subject to modification after verification by Reclamation:

> IID conserved 35,000 acre-feet of Colorado River water in 2010 which was transferred to SDCWA and exchanged with CVWD for non-Colorado River water to meet Salton Sea mitigation requirements for 2010. Also, in 2010, IID delivered

41,250 acre-feet of Colorado River water to the Salton Sea with a stated intention to store the water for use for Salton Sea mitigation requirements in 2011 and half of 2012. The appropriate accounting for the 41,250 acre-feet is under review by Reclamation and will be reflected in the Colorado River Accounting and Water Use Report for 2011.

Second, in the absence of an earlier consensus among the CRWDA Parties (including the United States), Reclamation will not make a decision prior to June 1, 2011, relating to the appropriate accounting for the Colorado River water IID delivered to the Salton Sea.

Third, if consensus is not reached, Reclamation intends to make a determination on or before July 1, 2011, relating to IID's delivery of Colorado River water to the Salton Sea in 2010.

Sincerely,

Lorri Gray-Lee
Regional Director

United States Department of the Interior

BUREAU OF RECLAMATION
Boulder Canyon Operations Office
P.O. Box 61470
Boulder City, NV 89006-1470

TAKE PRIDE IN AMERICA

IN REPLY REFER TO:

LC-4000
ADM-1.10

JAN 03 2011

Mr. Brian Brady
General Manager
Imperial Irrigation District
P.O. Box 937
Imperial, CA 92251

Dear Mr. Brady:

The Bureau of Reclamation is continuing to assess the implications and impacts of Imperial Irrigation District's (IID) recent decision to deliver Colorado River water directly to the Salton Sea in 2010 for the stated purpose of utilizing this water in 2011 and 2012 to satisfy IID's mitigation requirements in connection with transfers of conserved water. IID has informed Reclamation that Colorado River water has now been delivered by IID directly to the Salton Sea with the intention to store the water there, to be subsequently exchanged and charged against mitigation obligations in 2011 and 2012. As of this time, it does not appear that IID will conserve an equivalent amount of water.

IID embarked upon this course of action without first obtaining Reclamation's concurrence that such actions were permissible under the existing legal framework and consistent with the 2003 Colorado River Water Delivery Agreement, existing contracts, policy, and historical practice. This unilateral action by IID is of particular concern because it has the potential to destabilize the Colorado River Water Delivery Agreement which was the result of hard-fought compromises among numerous parties and the subject of intense scrutiny throughout the Colorado River Basin States. Reclamation has received letters from several interested parties with respect to IID's action.

In an effort to prevent an irretrievable fracturing of existing relationships and agreements, we believed it prudent to bring the parties to the Colorado River Water Delivery Agreement together to discuss with Reclamation potential outcomes and courses of action which might achieve IID's goals in a manner acceptable to all and within the framework of the law of the river. As a result of our first three meetings, held November 11, 2010, December 1, 2010, and December 15, 2010, Reclamation recognizes that the parties have a desire to resolve the immediate issues arising from IID's actions but also have concerns relating to the long-term implementation of the Colorado River Water Delivery Agreement, in particular, concerns relating to long-term environmental mitigation. We appreciate the willingness of the non-federal parties to the Colorado River Water Delivery Agreement (IID, The Metropolitan Water District of Southern California, Coachella Valley Water District, and San Diego County Water Authority) to participate in these discussions. Reclamation is committed to the Colorado River Water

Delivery Agreement and what it represents – a vitally important consensual, multi-agency commitment to stabilize the allocation of Colorado River water within the State of California for years to come.

As previously noted in my October 14, 2010, letter to IID, Reclamation does not believe it is appropriate to account for Colorado River water in the manner proposed by IID. If we cannot resolve the issues and if Reclamation cannot find a way to integrate IID's new direction into the existing regulatory and contractual framework, IID may be required to provide a repayment of such water to the Colorado River system.

Should you have questions, please contact me at 702-293-8411.

Sincerely,

Lorri Gray-Lee
Regional Director

cc: Mr. Jeff Kightlinger
General Manager
The Metropolitan Water District
of Southern California
P.O. Box 54153
Los Angeles, CA 90054-0153

Mr. Steve Robbins
General Manager – Chief Engineer
Coachella Valley Water District
P.O. Box 1058
Coachella, CA 92236-1058

Ms. Maureen A. Stapleton
General Manager
San Diego County Water Authority
4677 Overland Avenue
San Diego, CA 92123-1233

Mr. Gerald R. Zimmerman
Executive Director
Colorado River Board of California
770 Fairmont Avenue, Suite 100
Glendale, CA 91203-1035

United States Department of the Interior

BUREAU OF RECLAMATION
Lower Colorado Regional Office
P.O. Box 61470
Boulder City, NV 89006-1470

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LC-4000
ADM-1.10

FEB 07 2011

Ms. Patricia Mulroy
General Manager
Southern Nevada Water Authority
1001 South Valley View Boulevard
Las Vegas, NV 89153

Subject: IID Salton Sea Mitigation Water

Dear Ms. Mulroy:

Thank you for your letter of October 4, 2010, regarding the Imperial Irrigation District's (IID) proposed delivery of an additional 41,250 acre-feet of Colorado River water to the Salton Sea during 2010. At this point, the additional water has been delivered by IID directly to the Salton Sea with IID asserting an intention to store the water there, to be subsequently exchanged and accounted toward mitigation obligations in 2011 and 2012. It does not appear that IID will conserve an equivalent amount of water.

We are working with the parties to the Colorado River Water Delivery Agreement (CRWDA) to ensure that the mitigation commitments California entities have assumed under the various Quantification Settlement Agreement (QSA) agreements are achieved consistent with the CRWDA, the QSA agreements, and the Law of the River. The Bureau of Reclamation is participating in meetings with the CRWDA parties to address issues relating to IID's delivery of Colorado River water to the Salton Sea in 2010.

Enclosed for your information is a copy of a December 15, 2010, letter I sent to the CRWDA parties containing a footnote that Reclamation will include in the 2010 Colorado River Accounting and Water Use Report regarding IID's delivery of an additional 41,250 acre-feet to the Salton Sea in 2010. The letter also includes my commitment to make a determination on or before July 1, 2011, relating to the appropriate accounting for the 41,250 acre-feet of Colorado River water IID delivered to the Salton Sea. This deadline should provide sufficient time to resolve the issue in a timely manner so as to not affect other operational decisions on the Colorado River.

Also enclosed is a copy of a January 3, 2011, letter I sent to IID indicating that IID may be required to repay the 41,250 acre-feet to the Colorado River system if this issue cannot be resolved.

Please feel free to contact me at 702-293-8411 if you have questions.

Sincerely,

Lorri Gray-Lee
Regional Director

Enclosures-2

cc: Mr. Kevin Kelley
Acting General Manager
Imperial Irrigation District
P.O. Box 937
Imperial, CA 92251

Mr. Steven Robbins
General Manager – Chief Engineer
Coachella Valley Water District
P.O. Box 1058
Coachella, CA 92236-1058

Mr. Chris Harris
Acting Executive Director
Colorado River Board of California
770 Fairmont Avenue, Suite 100
Glendale, CA 91203-1035

Ms. Sandra A. Fabritz-Whitney
Acting Director
Arizona Department of Water Resources
3550 North Central Avenue
Phoenix, AZ 85012-2105

Mr. Jeffery Kightlinger
General Manager
The Metropolitan Water District
of Southern California
P.O. Box 54153
Los Angeles, CA 90054-0153

Ms. Maureen A. Stapleton
General Manager
San Diego County Water Authority
4677 Overland Avenue
San Diego, CA 92123-1233

Mr. George Caan
Director
Colorado River Commission of Nevada
555 East Washington Ave, Suite 3100
Las Vegas, NV 89101-1048

Mr. Don Ostler
Executive Director/Secretary
Upper Colorado River Commission
355 South 400 East
Salt Lake City, UT 84111-2969

United States Department of the Interior

BUREAU OF RECLAMATION
Lower Colorado Regional Office
P.O. Box 61470
Boulder City, NV 89006-1470

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ADM-1.10

December 15, 2010

Dr. Brian Brady
General Manager
Imperial Irrigation District
P.O. Box 937
Imperial, CA 92251

Ms. Maureen Stapleton
General Manager
San Diego County Water Authority
4677 Overland Ave.
San Diego, CA 92123

Mr. Jeffrey Kightlinger
General Manager
The Metropolitan Water District
of Southern California
P.O. Box 54153
Los Angeles, CA 90012

Mr. Steve B. Robbins
General Manager
Coachella Valley Water District
P.O. Box 1058
Coachella, CA 92236

Subject: Footnote for 2010 Water Accounting Report

Dear Colorado River Water Delivery Agreement Parties:

The Bureau of Reclamation is participating with you in a series of meetings involving Imperial Irrigation District (IID), Coachella Valley Water District, The Metropolitan Water District of Southern California, and the San Diego County Water Authority (collectively, Colorado River Water Delivery Agreement [CRWDA] Parties) to address issues relating to IID's delivery of Colorado River water to the Salton Sea in 2010.

During the course of these meetings it has become clear to the CRWDA Parties that the ability to reach a consensus resolution on short term and long term issues arising from or relating to the IID action will be enhanced by a clear understanding among the CRWDA Parties as to the timing of the Federal determination relating to the IID action. Reclamation believes it appropriate to state its intentions with respect to such determination facilitating continued good faith discussions.

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Second, in the absence of an earlier consensus among the CRWDA Parties (including the United States), Reclamation will not make a decision prior to June 1, 2011, relating to the appropriate accounting for the Colorado River water IID delivered to the Salton Sea.

Third, if consensus is not reached, Reclamation intends to make a determination on or before July 1, 2011, relating to IID's delivery of Colorado River water to the Salton Sea in 2010.

Sincerely,

Lorri Gray-Lee
Regional Director

United States Department of the Interior

BUREAU OF RECLAMATION
Boulder Canyon Operations Office
P.O. Box 61470
Boulder City, NV 89006-1470

TAKE PRIDE IN AMERICA

IN REPLY REFER TO:

LC-4000
ADM-1.10

JAN 03 2011

Mr. Brian Brady
General Manager
Imperial Irrigation District
P.O. Box 937
Imperial, CA 92251

Dear Mr. Brady:

The Bureau of Reclamation is continuing to assess the implications and impacts of Imperial Irrigation District's (IID) recent decision to deliver Colorado River water directly to the Salton Sea in 2010 for the stated purpose of utilizing this water in 2011 and 2012 to satisfy IID's mitigation requirements in connection with transfers of conserved water. IID has informed Reclamation that Colorado River water has now been delivered by IID directly to the Salton Sea with the intention to store the water there, to be subsequently exchanged and charged against mitigation obligations in 2011 and 2012. As of this time, it does not appear that IID will conserve an equivalent amount of water.

IID embarked upon this course of action without first obtaining Reclamation's concurrence that such actions were permissible under the existing legal framework and consistent with the 2003 Colorado River Water Delivery Agreement, existing contracts, policy, and historical practice. This unilateral action by IID is of particular concern because it has the potential to destabilize the Colorado River Water Delivery Agreement which was the result of hard-fought compromises among numerous parties and the subject of intense scrutiny throughout the Colorado River Basin States. Reclamation has received letters from several interested parties with respect to IID's action.

In an effort to prevent an irretrievable fracturing of existing relationships and agreements, we believed it prudent to bring the parties to the Colorado River Water Delivery Agreement together to discuss with Reclamation potential outcomes and courses of action which might achieve IID's goals in a manner acceptable to all and within the framework of the law of the river. As a result of our first three meetings, held November 11, 2010, December 1, 2010, and December 15, 2010, Reclamation recognizes that the parties have a desire to resolve the immediate issues arising from IID's actions but also have concerns relating to the long-term implementation of the Colorado River Water Delivery Agreement, in particular, concerns relating to long-term environmental mitigation. We appreciate the willingness of the non-federal parties to the Colorado River Water Delivery Agreement (IID, The Metropolitan Water District of Southern California, Coachella Valley Water District, and San Diego County Water Authority) to participate in these discussions. Reclamation is committed to the Colorado River Water

Delivery Agreement and what it represents – a vitally important consensual, multi-agency commitment to stabilize the allocation of Colorado River water within the State of California for years to come.

As previously noted in my October 14, 2010, letter to IID, Reclamation does not believe it is appropriate to account for Colorado River water in the manner proposed by IID. If we cannot resolve the issues and if Reclamation cannot find a way to integrate IID's new direction into the existing regulatory and contractual framework, IID may be required to provide a repayment of such water to the Colorado River system.

Should you have questions, please contact me at 702-293-8411.

Sincerely,

Lorri Gray-Lee
Regional Director

cc: Mr. Jeff Kightlinger
General Manager
The Metropolitan Water District
of Southern California
P.O. Box 54153
Los Angeles, CA 90054-0153

Mr. Steve Robbins
General Manager – Chief Engineer
Coachella Valley Water District
P.O. Box 1058
Coachella, CA 92236-1058

Ms. Maureen A. Stapleton
General Manager
San Diego County Water Authority
4677 Overland Avenue
San Diego, CA 92123-1233

Mr. Gerald R. Zimmerman
Executive Director
Colorado River Board of California
770 Fairmont Avenue, Suite 100
Glendale, CA 91203-1035

United States Department of the Interior

BUREAU OF RECLAMATION
Lower Colorado Regional Office
P.O. Box 61470
Boulder City, NV 89006-1470

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IN REPLY REFER TO:

LC-4000
ADM-1.10

FEB 07 2011

Mr. Thomas S. Virsik
Law Offices of Patrick J. Maloney
2425 Webb Avenue, Suite 100
Alameda Island, CA 94501-2922

Subject: IID/MWD Dispute Over Delivery of Colorado River Water to the Salton Sea

Dear Mr. Virsik:

Thank you for your letter of October 13, 2010, regarding the Salton Sea and the Quantification Settlement Agreement (QSA).

I appreciate the concern that you have expressed regarding the mitigation for the Salton Sea under the suite of QSA agreements. The Bureau of Reclamation will continue to work with the parties to the Colorado River Water Delivery Agreement (CRWDA) to ensure that the mitigation commitments, which California entities have assumed under the various QSA arrangements, are achieved consistent with the CRWDA, the QSA agreements, and the Law of the River.

Should you have questions, please contact me at 702-293-8411.

Sincerely,

Lorri Gray-Lee
Regional Director

cc: Mr. Kevin Kelley
Acting General Manager
Imperial Irrigation District
P.O. Box 937
Imperial, CA 92251

Mr. Jeff Kightlinger
General Manager
The Metropolitan Water District
of Southern California
P.O. Box 54153
Los Angeles, CA 90054-0153

Continued on next page.

cc: Continued from previous page.

Mr. Steven Robbins
General Manager – Chief Engineer
Coachella Valley Water District
P.O. Box 1058
Coachella, CA 92236-1058

Mr. Chris Harris
Acting Executive Director
Colorado River Board of California
770 Fairmont Avenue, Suite
Glendale, CA 91203-1035

Ms. Maureen A. Stapleton
General Manager
San Diego County Water Authority
4677 Overland Avenue
San Diego, CA 92123-1233

United States Department of the Interior

BUREAU OF RECLAMATION
Boulder Canyon Operations Office
P.O. Box 61470
Boulder City, NV 89006-1470

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IN REPLY REFER TO:

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ADM-1.10

JAN 03 2011

1-10-11
cc WD
Legal

Mr. Brian Brady
General Manager
Imperial Irrigation District
P.O. Box 937
Imperial, CA 92251

Dear Mr. Brady:

The Bureau of Reclamation is continuing to assess the implications and impacts of Imperial Irrigation District's (IID) recent decision to deliver Colorado River water directly to the Salton Sea in 2010 for the stated purpose of utilizing this water in 2011 and 2012 to satisfy IID's mitigation requirements in connection with transfers of conserved water. IID has informed Reclamation that Colorado River water has now been delivered by IID directly to the Salton Sea with the intention to store the water there, to be subsequently exchanged and charged against mitigation obligations in 2011 and 2012. As of this time, it does not appear that IID will conserve an equivalent amount of water.

IID embarked upon this course of action without first obtaining Reclamation's concurrence that such actions were permissible under the existing legal framework and consistent with the 2003 Colorado River Water Delivery Agreement, existing contracts, policy, and historical practice. This unilateral action by IID is of particular concern because it has the potential to destabilize the Colorado River Water Delivery Agreement which was the result of hard-fought compromises among numerous parties and the subject of intense scrutiny throughout the Colorado River Basin States. Reclamation has received letters from several interested parties with respect to IID's action.

In an effort to prevent an irretrievable fracturing of existing relationships and agreements, we believed it prudent to bring the parties to the Colorado River Water Delivery Agreement together to discuss with Reclamation potential outcomes and courses of action which might achieve IID's goals in a manner acceptable to all and within the framework of the law of the river. As a result of our first three meetings, held November 11, 2010, December 1, 2010, and December 15, 2010, Reclamation recognizes that the parties have a desire to resolve the immediate issues arising from IID's actions but also have concerns relating to the long-term implementation of the Colorado River Water Delivery Agreement, in particular, concerns relating to long-term environmental mitigation. We appreciate the willingness of the non-federal parties to the Colorado River Water Delivery Agreement (IID, The Metropolitan Water District of Southern California, Coachella Valley Water District, and San Diego County Water Authority) to participate in these discussions. Reclamation is committed to the Colorado River Water

Delivery Agreement and what it represents – a vitally important consensual, multi-agency commitment to stabilize the allocation of Colorado River water within the State of California for years to come.

As previously noted in my October 14, 2010, letter to IID, Reclamation does not believe it is appropriate to account for Colorado River water in the manner proposed by IID. If we cannot resolve the issues and if Reclamation cannot find a way to integrate IID's new direction into the existing regulatory and contractual framework, IID may be required to provide a repayment of such water to the Colorado River system.

Should you have questions, please contact me at 702-293-8411.

Sincerely,

Lorri Gray-Lee
Regional Director

cc: Mr. Jeff Kightlinger
General Manager
The Metropolitan Water District
of Southern California
P.O. Box 54153
Los Angeles, CA 90054-0153

Mr. Steve Robbins
General Manager – Chief Engineer
Coachella Valley Water District
P.O. Box 1058
Coachella, CA 92236-1058

Ms. Maureen A. Stapleton
General Manager
San Diego County Water Authority
4677 Overland Avenue
San Diego, CA 92123-1233

Mr. Gerald R. Zimmerman
Executive Director
Colorado River Board of California
770 Fairmont Avenue, Suite 100
Glendale, CA 91203-1035

RECEIVED
JAN 10 2011
IMPERIAL IRRIGATION DISTRICT
GENERAL MANAGER'S OFFICE

STATE OF COLORADO

Colorado Water Conservation Board
Department of Natural Resources
1313 Sherman Street, Room 721
Denver, Colorado 80203
Phone: (303) 866-3441
Fax: (303) 866-4474
www.cwcb.state.co.us

Bill Ritter, Jr.
Governor

Mike King
DNR Executive Director

Jennifer L. Gimbel
CWCB Director

Ms. Lorri Gray-Lee
Regional Director
U.S. Bureau of Reclamation
Lower Colorado Region
P.O. Box 61470
Boulder City, NV 89006-1470

By Facsimile: 702-293-8333

Dear Ms. Gray-Lee:

I have received letters within the last sixty days from the Imperial Irrigation District (IID), the Metropolitan Water District of Southern California (Metropolitan), and the Southern Nevada Water Authority (SNWA) related to IID's request that you approve their plan to use 41,250 acre-feet of Colorado River water to fulfill its mitigation obligations under the Quantification Settlement Agreement (QSA). I have also received your October 14, 2010 response to these letters. I am writing to provide support for your articulated response.

As you know, the State of Colorado (and the other Colorado River basin states) were heavily involved in the negotiations that resulted in the QSA and the federal Colorado River Water Delivery Agreement (CRWDA). Moreover, the State of Colorado has worked closely with the other Colorado River basin states over the last several years to develop the 2007 Colorado River Interim Guidelines that provide for coordinated operation of Lakes Mead and Powell and shortage criteria. Under these Guidelines, Lakes Powell and Mead are inextricably linked; actions in the lower basin have direct impacts on Lake Powell operations. IID's proposal to ignore the clear text of the CRWDA will have impacts on all of the Colorado River basin water users, including Colorado. As such, I request that you keep me apprised of the outcome of your proposed meeting to discuss the IID proposal to assure that the result is one that Colorado could support.

Sincerely,

Jennifer Gimbel

Jennifer Gimbel
CWCB Director

Cc: Mike Connor, Commissioner of the Bureau of Reclamation
Don Ostler, Upper Colorado River Commission
Gerald Zimmerman, Colorado River Board of California
Herb Guenther, Arizona Department of Water Resources
Patricia Mulroy, Southern Nevada Water Authority
Jeffrey Kightlinger, Metropolitan Water District of California
Maureen Stapleton, San Diego County Water Authority
Wally Leimgruber, County of Imperial Board of Supervisors
Steven Robbins, Coachella Valley Water District
Victoria Whitney, State Water Resources Control Board
Mark Cowin, Department of Water Resources
Curt Taucher, QSA Joint Powers Authority
John D'Antonio, Office of the State Engineer, New Mexico
Dennis Strong, Department of Natural Resources, Utah
Pat Tyrell, Office of the State Engineer, Wyoming

DISTRICT 1
LOUIS FUENTES

DISTRICT 2
JACK TERRAZAS

DISTRICT 3
MICHAEL W. KELLEY

DISTRICT 4
GARY WYATT

DISTRICT 5
WALLY LEIMGRUBER

Board of Supervisors
County of Imperial

COUNTY ADMINISTRATION CENTER

940 MAIN STREET, SUITE 209
EL CENTRO, CA 92243-2871
TELEPHONE: (760) 482-4220
FAX: (760) 482-4215

November 2, 2010

Lorri Gray-Lee, Regional Director
Lower Colorado Regional Office
U.S. Bureau of Reclamation
P.O. Box 61470
Boulder City, NV 89006-1470

Dear Ms. Gray-Lee:

Thank you for including our Board of Supervisors in your October 14, 2010 response to the correspondence from the Imperial Irrigation District and Metropolitan Water District, concerning the use of water diverted from the Colorado River to mitigate impacts at the Salton Sea. We share with the Bureau and the water agencies a great interest in this matter, as the stability of the Salton Sea is of prime importance to the environment and economy of the County of Imperial.

In your letter you propose to bring together "all the parties to the CRWDA" to reach a result that all can support. In light of our interest in these matters, which we view to be at least as great as that of the water agencies, we request that representatives of the County of Imperial be included in such discussions.

Preliminarily, we also request an opportunity to meet with you on our own so that we might begin a dialogue on the most constructive ways for the Bureau and County to cooperate on meeting our needs for protecting the environment and economy as affected by the transfer of Colorado River water out of our jurisdiction.

Please let us know how and where we may most conveniently meet with you and participate in the larger meeting that you have proposed.

Respectfully,

Louis A. Fuentes, Chairman
Board of Supervisors

Jack Terrazas
District 2 Supervisor

Michael W. Kelley
District 3 Supervisor

Gary Wyatt
District 4 Supervisor

Wally Leimgruber
District 5 Supervisor

LEWIS BRISBOIS BISGAARD & SMITH LLP
ATTORNEYS AT LAW

221 North Figueroa Street, Suite 1200
Los Angeles, CA 90012
Telephone: 213.250.1800
Fax: 213.250.7900
www.lbbslaw.com

11/5/10
LC-4000

MALISSA HATHAWAY McKEITH
DIRECT DIAL: 213.580.6303
E-MAIL: mckeith@lbbslaw.com

October 29, 2010

VIA FIRST CLASS MAIL AND E-MAIL

Ms. Lorri Gray-Lee
Regional Director
United States Bureau of Reclamation
Lower Colorado Division
500 Fir Street
Boulder City, NV 89006-2403

E-mail: lgray@usbr.gov

Orig to LC-4000
Cpy to LC-1000
scanned and sent to
Rod Smith
Katherine Verburg

Dear Director Gray-Lee:

I recently received a copy of the Bureau of Reclamation's ("Bureau") October 14, 2010 letter to the Imperial Irrigation District ("IID"). In that letter, you object to IID's use of its Colorado River entitlement to protect the public from Salton Sea pollution caused largely in part by implementation of the Quantification Settlement Agreements ("QSA").

First, I appreciate that the Bureau copied the County of Imperial ("County") on this letter since the County is the entity most directly responsible for the health and economic well being of Imperial's citizens. The County and the Imperial Air Pollution Control District have adopted resolutions supporting the IID's efforts to quell this growing public health, environmental, and economic problem by sending a portion of their entitled water to the Salton Sea. Moreover, just yesterday, the Salton Sea Authority ("SSA") unanimously voted in favor of IID's efforts. The SSA Board includes members of both the Imperial and Coachella Valley, signaling a growing recognition on the north shore that the Salton Sea's decline poses a serious regional problem.

As you know, I was the Governor's appointee to the Colorado River Board of California from 1997 to 2002, during which time I witnessed, firsthand, the "closed door" nature of discussions over the QSA. Though public hearings ultimately were held, allowing for some limited input, the format did not invite the candid exchange and compromise that can occur when negotiations are open and incorporate interests beyond those of just the water agencies. Because water transfers carry significant long-term economic, environmental, and public health consequences, the Bureau, at this time, must

involve responsible representatives of the people most affected by the QSA, including agricultural interests whose crops will be threatened by contaminated dust as the Salton Sea worsens.

As one of the attorneys who recently obtained a judgment invalidating the QSA, I also want to address the Bureau's apparent denial of the possibility that the QSA will not continue in its current form. I attended Congressional hearings in December 2009 addressing the invalidation of all QSA agreements, at which the words "Salton Sea" were never even uttered. Instead, the Bureau gave glib testimony about how it would find some "end run" around the court's judgment if it is upheld on appeal. Though I am confident that the federal government ultimately would honor the Rule of Law, I am well familiar with the water agencies ability to legislatively maneuver around judicial decisions and thereby avoid addressing - for the moment - the serious shortcomings of the QSA.

When the QSA was signed in 2003, IID's Board fully expected that the State of California would finance restoration of the Salton Sea. Declarations submitted to the Court of Appeal by two of the three IID Board members who voted "yes" in 2003 confirmed those expectations, as well as the fact that the IID Board would not have approved the QSA had the material changes in the final agreements been disclosed to them. In fact, shortly before signing the QSA Agreements, Lloyd Allen - the third "yes" vote and sole Board signatory of the agreements - sent correspondence to the public justifying the deal on the grounds that California would be funding all Salton Sea restoration so that the Valley would bear no expense or liability. The Superior Court found that the agreements were materially altered before Mr. Lloyd executed them, a fact that came as a surprise to the current IID Board, and most certainly to the public.

In the end, however, the legal wrangling is irrelevant. As the attached photos taken this last week show, even with the increased water that IID sent to the Salton Sea, the current water allocated to mitigate impacts of the water transfers is wholly insufficient to control the dust and to mitigate the resulting threat to public health, the environment, and the agricultural industry. Under California law, the use of water for environmental and public health purposes is a reasonable and beneficial use. It is even more reasonable in this instance because PM-10 pollutants worsen asthma. Imperial County already suffers the highest asthma rates in the State of California, as well as having the lowest per capita income making medical treatment often unaffordable. These "environmental justice" considerations were never evaluated by the State Water Resources Control Board in the 1980's, when it claimed IID was wasting water, nor by the Bureau in its 2003 Part 417 Proceeding.[1] Needless to say, it would be disturbing if the Bureau took the position that a

[1] Nor did the Bureau or State Board evaluate the long-term impacts to food supply if Imperial's crops become increasingly contaminated from Salton Sea dust. Since agriculture remains the primary source of (footnote continued)

poor, rural county cannot use some of its water entitlement to protect the public health of its residents from high levels of PM-10, where the State of California has failed to live up to its obligations.[2]

Without question, reducing California's use of its Colorado River water is important. The Bureau, therefore, should immediately revisit the critical issue of whether the QSA, as negotiated in 2003, is truly the best option available. The ramp-up of the QSA water transfers in 2017 and the imminent elimination of mitigation water to the Salton Sea have not yet occurred. When it does, however, the situation will be even more dire. Regardless of the pending litigation, it is more than appropriate to reconsider some aspects of the QSA in light of what is known today. Technical advances in desalination, recycling, construction practices, and conservation may mean there are alternatives for meeting California's allocation that have far less damaging impacts and, frankly, are less costly even for the coastal cities.

Given the above, I urge the Bureau and the Secretary of Interior to convene meetings that include a broad representation of affected interests including, for example, the Salton Sea Authority, the County of Imperial and its air district, the Coachella Valley Association of Governments, and local property owners (both commercial and agricultural) impacted by the declining Sea. Those meetings should also include representatives of the Environmental Protection Agency, which has found Imperial County to be in PM-10 non-attainment, and the Department of Agriculture in light of the potential impacts to U.S. food supply if Imperial's agricultural resources are compromised.

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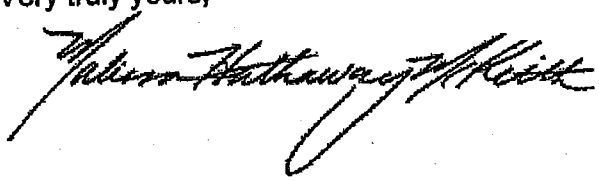
employment in the Imperial Valley, the failure of your agencies to address these impacts could threaten the viability of one of the most fruitful agricultural areas in our country.

[2] While I appreciate the concerns of the Upper Basin States and Nevada with regard to the continued drought, the water being used for health purposes by IID otherwise would flow to MWD if the QSA were, in fact, legal. As such, IID's current actions do not worsen conditions on Lake Mead. As to MWD, before it cries foul, it might want to address the large quantities of urban runoff that freely flow into the ocean that could be conserved or reused. This practice is far more "wasteful" than tail-water replenishing the Salton Sea and could be a factor if Part 417 Proceedings are initiated in the future.

Thank you for your consideration of the above.

Very truly yours,

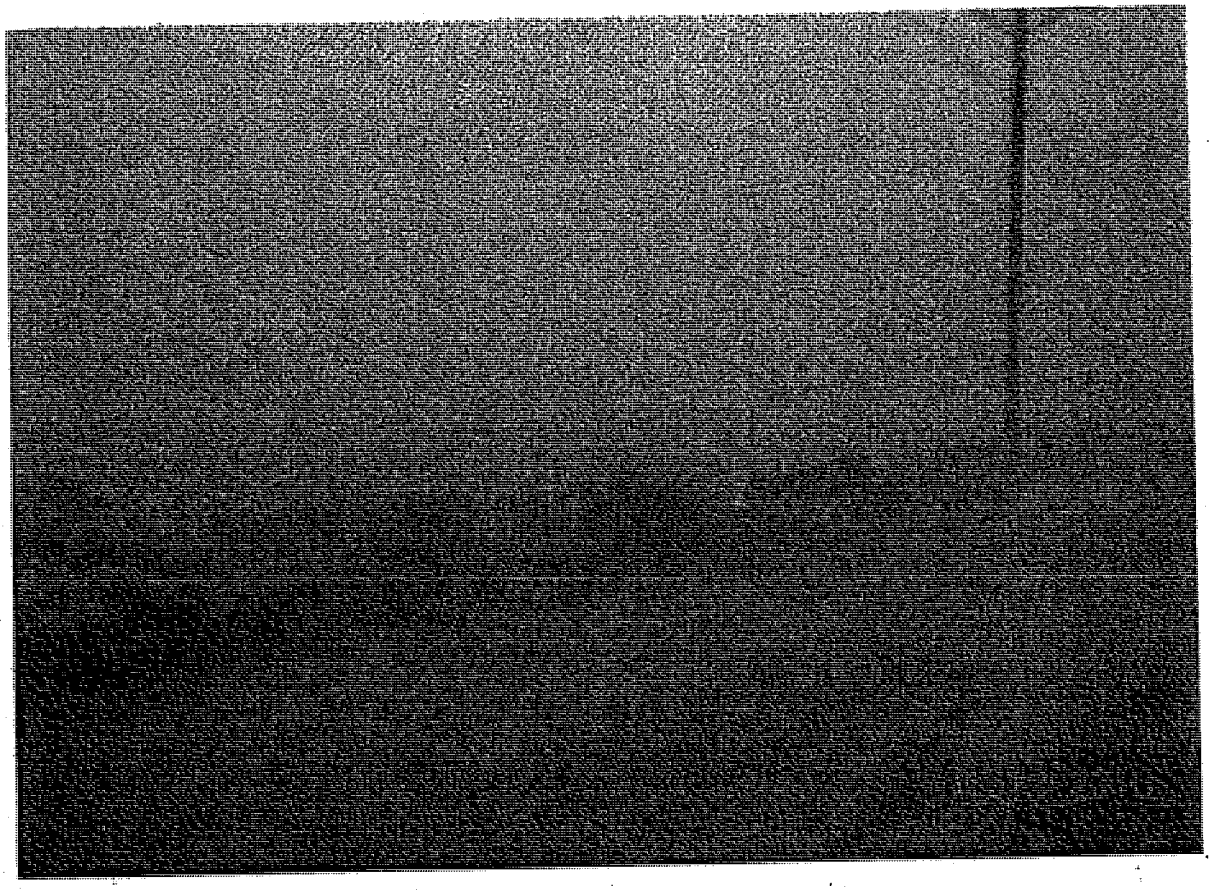


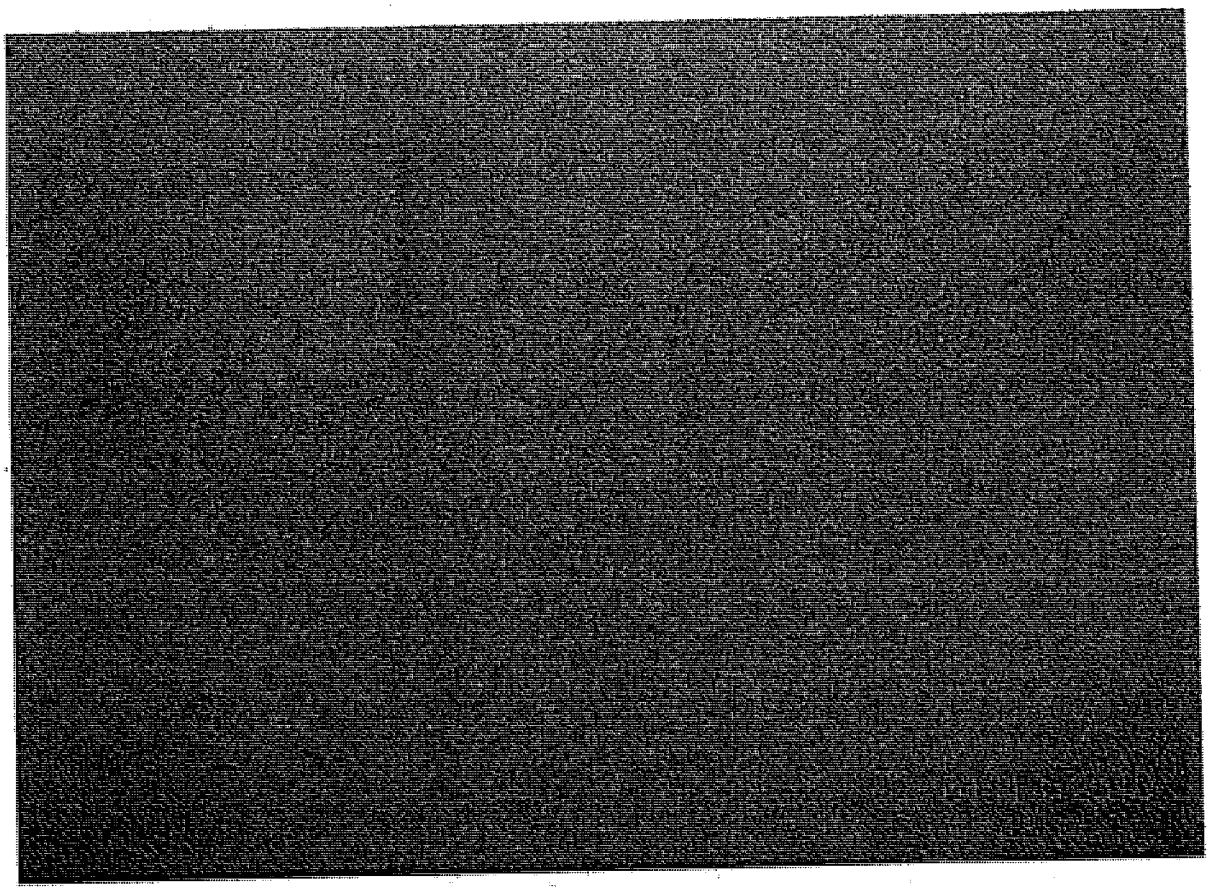
Malissa Hathaway McKeith of
LEWIS BRISBOIS BISGAARD & SMITH LLP

MHM:me
Enclosures

cc: The Honorable Dianne Feinstein, United States Senate
The Honorable Barbara Boxer, United States Senate
The Honorable Grace F. Napolitano, United States Congress, Chairwoman for the Subcommittee on Water and Power of the U.S. House of Representative Committee on Resources
The Board of Directors of the Imperial Irrigation District
The Board of Supervisors of Imperial County

01.13.2009





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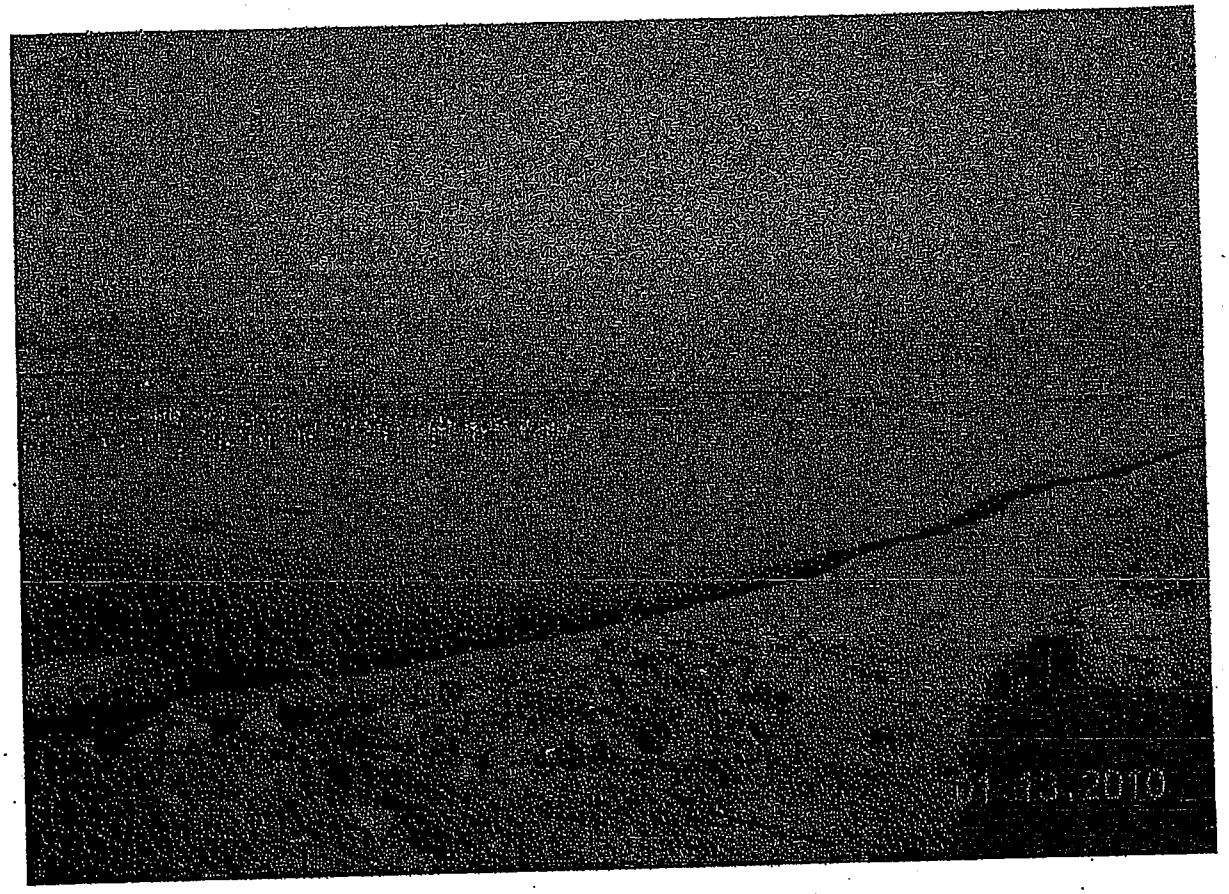
01.13.2010

San Diego County Water Authority
4677 Overland Avenue • San Diego, California 92123-1233
(858) 522-6600 FAX (858) 522-6568 www.sdcwa.org

October 25, 2010

MEMBER AGENCIES
Carlsbad Municipal Water District
City of Del Mar
City of Escondido
City of National City
City of Oceanside
City of Poway
City of San Diego
Fallbrook Public Utility District
Helix Water District
Lakeside Water District
Otivenhain Municipal Water District
Otay Water District
Padre Dam Municipal Water District
Camp Pendleton Marine Corps Base
Rainbow Municipal Water District
Ramona Municipal Water District
Rincon del Diablo Municipal Water District
San Dieguito Water District
Santa Fe Irrigation District
South Bay Irrigation District
Vallecitos Water District
Valley Center Municipal Water District
Vista Irrigation District
Yuima Municipal Water District

OTHER REPRESENTATIVE
County of San Diego

Lorri Gray-Lee
Regional Director
United States Department of the Interior
Bureau of Reclamation
Lower Colorado Regional Office
P.O. Box 61470
Boulder City, NV 89006-1470

Lorri,

You have received a notification from the Imperial Irrigation District ("IID") that it intends to consumptively use Colorado River water by temporarily storing it in the Salton Sea to directly mitigate Quantification Settlement Agreement ("QSA") impacts and Metropolitan Water District's ("MWD") opposition. MWD has opposed IID's action, largely based upon its claim that "mitigation" is not a permissible consumptive use under applicable federal law and contracts. However, at the heart of the present issue between IID and MWD is the long-standing dispute as to whether California law applies to IID's use of Colorado River water within California.

California law applies to water use within California when that use is not inconsistent with express Congressional directives. IID's Colorado River water rights originated under State common law prior to the execution of any federal involvement. IID holds appropriative right permits issued by the State, and the California State Water Resources Control Board has exercised jurisdiction over IID's water rights to assess its efficiency of use, undertaken public trust evaluations and conditioned and approved the transfer of water by IID that is implemented by the Colorado River Water Delivery Agreement ("CRWDA") referenced in your letter to IID dated October 14, 2010.

While IID's and MWD's respective positions regarding the primacy of State and Federal law were reserved by the CRWDA (Section 2), as a part of the QSA, MWD contractually agreed that at least insofar as mitigation water is concerned, it would <u>not</u> oppose IID's consumptive use of Colorado River water for QSA environmental mitigation. (MWD/IID Acquisition Agreement, §16.2; CVWD/IID Acquisition Agreement, §14.3.)

Moreover, while direct consumptive use of Colorado River water for fish and wildlife purposes might be expressly prohibited by federal law under some

circumstances, we are unaware of any Congressional directives to that effect in the instant matter. To the contrary, both California and federal law authorize the use of California's water for mitigation and storage purposes, which constitutes both an alternative consumptive use and an ancillary irrigation use. This is not surprising given the entire fabric of Western Water Law and existing federal policy stand in favor of improving greater efficiency while pursuing storage, conservation and transfer opportunities. This policy has been supported by the two previous federal administrations in addition to the current one. It makes no sense to undercut prior progress through the imposition of rigid limitations on a water user's purpose or place of use, preventing a reasonable solution to mitigate harm that would otherwise be a legal barrier to the successful implementation of this policy.

A suggested reading of footnote 5 to Exhibit B of the CRWDA as an absolute prohibition against IID using Colorado River water for environmental mitigation, unless completed by an exchange for other California water, without consideration of background and context, serves to place form over substance and may in itself be inconsistent with federal policy. Rather than tackling the larger long-standing issue of State or Federal primacy, we respectfully request that the Bureau follow its own suggested course and convene a meeting among the interested Colorado River stakeholders to focus on a workable solution to the more narrow actual issue at hand.

Sincerely,

Maureen A. Stapleton
General Manager

United States Department of the Interior

BUREAU OF RECLAMATION
Lower Colorado Regional Office
P.O. Box 61470
Boulder City, NV 89006-1470

TAKE PRIDE IN AMERICA

IN REPLY REFER TO:
LC-4000
ADM-1.10

OCT 14 2010

Mr. Brian Brady
General Manager
Imperial Irrigation District
P.O. Box 937
Imperial, CA 92251

Dear Mr. Brady:

We have received Imperial Irrigation District's (IID) letter dated September 20, 2010. IID's letter proposes to put 41,250 acre-feet of Colorado River water in the Salton Sea in 2010. IID describes this action as meeting certain future mitigation obligations related to transfers of water from IID to San Diego. These ag-urban water transfers are authorized under the Colorado River Water Delivery Agreement (CRWDA) dated October 10, 2003, and permit the State of California to live within its Colorado River apportionment, a matter of vital interest to all of the Colorado River Basin states. The Bureau of Reclamation notes that the current elevation of Lake Mead and the potential for shortages as early as 2012, have caused other entities to express concerns with this action.

IID proposes that the water put in the Salton Sea be accounted for by Reclamation as a consumptive use in calendar year 2010 of a portion of IID's entitlement to the use of Colorado River water, with the water to be applied by IID to fulfill in whole or in part IID's mitigation obligations in 2011 and 2012 arising from the water transfers. The IID letter addresses the implications of the proposal, including legal, policy, economic, and hydrologic implications.

Reclamation implements the CRWDA on behalf of the Secretary of the Interior (Secretary) and accounts for the use of Colorado River water under the CRWDA in the annual report provided to the United States Supreme Court. The CRWDA sets forth IID's mitigation obligation for the transfers in Exhibit B, Column 7, which in turn is modified by footnotes 5 and 6. In evaluating IID's proposal, Reclamation notes that the proposal on its face appears to be inconsistent with the express language of footnote 5, which reads as follows: "5. Any amount identified in Exhibit B for mitigation purposes <u>will only be from non-Colorado River sources</u> and these amounts may be provided by exchange for Colorado River water [emphasis added]." The provisions of this footnote were the subject of detailed discussion and negotiation among all of the CRWDA parties and were an essential element in the Department of the Interior's ultimate approval of the CRWDA. Therefore, Reclamation does not believe it is appropriate to account for Colorado River water in the manner proposed by IID.

The CRWDA was a collaborative effort. It is a complex multi-party agreement that was the hard fought result of multi-year negotiations among the parties to the CRWDA: the Secretary, IID, The Metropolitan Water District of Southern California, Coachella Valley Water District, and San Diego County Water Authority. For this reason, Reclamation believes it essential to have a full exploration of the extent to which, if at all, the IID proposal may be implemented consistent with the terms of the CRWDA and consistent with other Federal law, contracts, and policy through appropriate mechanisms. To that end, Reclamation proposes to bring together the parties to the CRWDA to discuss the IID proposal in an effort to reach a result which all the CRWDA parties may support. As the Commissioner has stated in recent Congressional hearings, Reclamation supports the CRWDA and fully intends to continue to implement the terms of this far-reaching agreement.

Sincerely,

Lorri Gray-Lee
Regional Director

cc: Gerald Zimmerman
Acting Executive Director
Colorado River Board of California
770 Fairmont Ave, Suite 100
Glendale, CA 91203-1035

Herb Guenther
Director
Arizona Department of Water Resources
3550 North Central Ave
Phoenix, AZ 85012-2105

Patricia Mulroy
General Manager
Southern Nevada Water Authority
100 City Parkway, Suite 700
Las Vegas, NV 89106

Jeffrey Kightlinger
General Manager
The Metropolitan Water District of Southern California
700 North Alameda Street
Los Angeles, CA 90012-2944

Maureen Stapleton
General Manager
San Diego County Water Authority
4677 Overland Avenue
San Diego, Ca 92123-1233

Wally Leimgruber
Chairman
County of Imperial Board of Supervisors
940 Main Street
El Centro, CA 92243

Steven Robbins
General Manager
Coachella Valley Water District
85995 Avenue 52
Coachella, CA 92236

Victoria Whitney
Deputy Director
State Water Resources Control Board
1001 I Street
Sacramento, CA 95814

Mark Cowin
Director
Department of Water Resources
1416 – 9th Street, Room 1115-1
Sacramento, CA 95814

Curt Taucher
QSA Joint Powers Authority
California Department of Fish and Game
R6-Inland Deserts Region
4665 Lampson Ave., Suite J
Los Alamitos, CA 90720

Don Ostler
Executive Director
Upper Colorado River Commission
355 Soutth 400 East
Salt Lake City, UT 84111

Kim Delfino
Defenders of Wildlife
1303 J Street, Suite 270
Sacramento, CA 95814

Michael Cohen
Pacific Institute
654 13th Street
Preservation Park
Oakland, CA 94612

Dan Taylor
Audubon California
765 University Avenue, Suite
Sacramento, CA 95825

LAW OFFICES OF
PATRICK J. MALONEY

2425 WEBB AVENUE, SUITE 100
ALAMEDA ISLAND, CALIFORNIA 94501-2922

PATRICK J. "MIKE" MALONEY

(510) 521-4575
FAX (510) 521-4623
e-mail: PJMLAW@pacbell.net

THOMAS S. VIRSIK

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FOLLOW-UP
KEYWORD

October 13, 2010

Lorri Gray-Lee
Bureau of Reclamation
Lower Colorado Regional Office
Attn BC00-42-00
P.O. Box 61470
Boulder City, NV 89606-1470

Brian Brady, General Manager
Imperial Irrigation District
P.O. Box 937
Imperial, CA 92251

Jeffrey Kightlinger, General Manager
Metropolitan Water District of Southern California
P.O. Box 54153
Los Angeles, CA 90054-0153

Re: IID/MWD dispute over delivery of Colorado River Water to the Salton Sea

Dear Ms. Gray-Lee and Messrs. Brady and Kightlinger:

This letter is in reference to letters by the Imperial Irrigation District and Metropolitan Water District of Southern California (IID and MWD) dated September 20, 27 and October 5, 2010.

Our office represents farmers and landowners that have been involved in Imperial Valley water management issues for many years, participated in the 2003 Part 417 review, and are now among the Respondents in the QSA appeal. Various farmers and landowners (including clients) sought a non-litigation solution to water management and the Salton Sea in 2002, as the enclosed December 30, 2002 letter to Hon. Bennett Raley attests. Instead of focusing on whether IID is able to or obligated to deliver water (including quantities and type) to the Salton Sea, our clients instead suggest that the fundamental underlying reality that IID remains incapable of appropriately managing its water be immediately addressed as that is the common denominator in the QSA appeal, the present water order controversy, the "unraveling" of the QSA settlements, and the "environmental Chernobyl" of an unresolved Salton Sea identified by the QSA trial court. In any event, any proposal on water management that does not have the full participation

(not mere observation) by those who use over 90% of the water IID delivers in the Imperial Valley is counterproductive, as the several sniping letters by IID and MWD already illustrate.

Our clients have spent a substantial part of the last decade developing solutions to IID's problems, rather than fighting for the sake of fighting. In addition to our clients' low-cost Salton Sea solution, they have also succeeded in developing a Water Exchange system to assist IID in its water management responsibilities (US Patent No. 7,805,380). They offer this Water Exchange system as a tool to IID (without cost to IID) to allow it to improve its management ability so that the other issues important to other Colorado River users can then be addressed reliably and rationally. A summary of the Water Exchange is enclosed.

To the extent that the real issue for IID is purely fiscal[1], our clients repeat offers made to IID many times in the past: a parity of data, a level playing field, and that all persons involved not be tainted by contravening interests or conflicts so that the IID and those that pay to keep it in existence negotiate a fiscal solution using the framework of California's unique Constitutional (Articles XIII C and D, aka Proposition 218) protections for rate and/or assessment payers.

Sincerely,

Thomas S. Virsik

Encl. Letter to Hon. Bennett Raley, December 30, 2002
Water Exchange summary (draft)

c. Gerald R. Zimmerman, Acting Executive Director, Colorado River Board of California
Herbert R. Guenther, Director, Arizona Department of Water Resources
Patricia Mulroy, General Manager, Southern Nevada Water Agency
Maureen Stapleton, General Manager, San Diego County Water Authority
Steven B. Robbins, General Manager, Coachella Valley Water District
Victoria A. Whitney, Deputy Director, State Water Resources Control Board
Mark K. Cowin, Director, Department of Water Resources
Charles R. Hoppin, Chair, State Water Resources Control Board
Curt Taucher, QSA Joint Powers Authority, California Department of Fish and Game
Don Ostler, Upper Basin Commissioner
Kim Delfino, Defenders of Wildlife
Michael Cohen, Pacific Institute
Dan Taylor, Audubon California
Wally Leimgruber, Imperial County Board of Supervisor

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[1] The October 5, 2010 letter from IID's General Manager characterizes the QSA JPA as "economically beleaguered", recites "QSA-JPA agreement funding uncertainty" and a "lack of assurance of mitigation funding" in the face of "litigation uncertainty" as a reason IID will be unable to pay for farmer fallowing in 2011, emphasizes a "less expensive source of mitigation water", and concludes with bemoaning that IID – seemingly in contrast to its QSA partners – "is expending significant effort and money litigating" to keep the present iteration of the QSA free of correction, critical analysis, or improvement. See pages 1, 5, 6 and 7 of the October 5, 2010 letter.

THE IMPERIAL GROUP
3949 Austin Road
Brawley, CA 92227
Ph. 760.344.5253
Fax. 760.344.6072

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PROJECT
CONTROL NO.
FOLDER I.D.
KEYWORD

Via fax and mail
December 30, 2002

Hon. Bennett Raley
Assistant Secretary – Water
1849 C Street NW
Washington, DC 20240

Hon. Board of Directors
Imperial Irrigation District
1284 Main Street
El Centro, CA 92243

Re: December 27, 2002 letter of Hon. Bennett Raley to Jesse Silva

Dear Hon. Bennett Raley and Hon. Directors:

As you are aware, the Imperial Group consists of substantial landowners / beneficiaries of the water rights that the Imperial Irrigation District (IID) holds in trust. We have reviewed the above letter and are relieved with the Department of Interior's (DOI's) statement of what they will do should the QSA not be executed by the end of this calendar year. We are not, however, taking any position as to whether the DOI's interpretation of the Law of the River and California law is correct, but are accepting it at face value for purposes of this letter.

While some voices have insistently declared that DOI would literally turn off the taps to the Colorado River and thereby decimate Imperial County, we can see that the truth is quite different. The subject letter plainly refutes any notion that DOI will act punitively or arbitrarily towards IID and its landowners / beneficiaries, much less the economy and citizens of Imperial County. The simple truth is in the numbers; the numbers of the two projections on pages 3 and 6 of the letter. 2,858,900 v. 3,070,400 AF (a delta of 211,500 AF). The bottom line is that if the QSA is not signed, IID stands to lose approximately 6.8 % of its water entitlements. The predictions of drastic reductions have proved false.

Bear in mind that the scenarios projected by DOI do not take into account the water priority to be transferred to CVWD under the QSA, nor do they take into account the water that must be let flow to the Salton Sea under the SWRCB order if the QSA is signed. On the contrary, we must assume that by omitting the Salton Sea flows, DOI is overruling the SWRCB order about Salton Sea makeup water and decreeing as Master of the River that no water may purposely flow to the Sea out of IID's allocation. Nor does

the DOI letter define "consumptive use" and why it is used in one chart but not in the other. These points (Salton Sea flows and "consumptive use") must be resolved immediately so that IID, DOI, and the landowners / beneficiaries can compare apples to apples. With those unresolved points, we are far from certain if the actual reduction of water to the water users in the IID will amount to the claimed 6.8 %.

Given the host of uncertainties farmers in the Imperial Valley face on a continuing basis -- the market, weather, interest rates, labor -- a reduction of some 6 % of water is unremarkable. Farmers have routinely ridden through much harder times. That level of improvement can be accomplished in the same way other efficiencies have been accomplished -- by the farmers and landowners themselves, with the support and unflinching cooperation of IID. The economy and jobs of the region may be affected, but not in any drastic fashion. The predictions of an apocalypse in IID if the QSA is not signed are no longer credible.

Just as importantly, DOI is putting in stark terms the "advantages" IID will receive if it bows to pressure and signs the QSA. That benefit is (perhaps) a six or so percent greater water entitlement. Weighed against that "advantage," are the unspecified risks the proposed transfer brings, including uncapped liabilities and extensive fallowing. To risk uncapped liabilities and extensive fallowing for nominally greater flows is, in a word, irresponsible. Moreover, the IID is not obligated to sign the QSA. The SWRCB order explicitly denies that it is binding on the IID unless the IID chooses to go forward with the transfer. No prudent trustee would ever accept such great risks for so little advantage.

The letter does not state, of course, the effect on the other water users if the QSA is not signed. Presumably other water entitles will need to make changes consistent with their junior right to the Colorado River water, e.g., fallow golf courses in the CVWD or modify new construction landscaping on the Coast. But those actions are no more than what the Supreme Court decrees require for junior rights holders. While the effect may be harsh outside of the IID, the IID would serve its beneficiaries best by taking advantage of its stronger position and biding its time and structuring a truly advantageous transfer.

If nothing else, the DOI letter is a timely reminder that the landowners / beneficiaries must continue to protect their water rights. Indeed, had the landowners not historically protected their rights so adamantly and received the favorable outcome in the Yellen lawsuit, the IID would be faced with much greater reductions given how the PPR's would have been calculated.

Our clients do not wish to create any impression that they oppose the transfer of water. On the other hand, they are not withdrawing their December 6, 2002 letter terminating the IID's trustee authority over the water rights. Any transfer must, however, be equitable and treat all landowners fairly and be advantageous (or at least neutral) for all citizens of Imperial County. A copy of the letter we have sent to landowners stating our basic position is enclosed. We have individually and collectively tried to cooperate with the IID and all parties but IID has declined to follow up. In that vein, we reiterate our request for information in IID's possession (detailed in numerous letters since September

2002) that will allow the creation of a landowner- and user-controlled water bank so that appropriate reductions and efficiencies may be achieved. If the IID cooperates and supports its beneficiaries, all of the citizens of Imperial County may benefit.

According to the DOI letter, there is a 30-day window of opportunity before DOI can take action (top of page 7). The Imperial Group stands ready to work with the DOI and IID to resolve all issues during this time and has ready to meet at any time a Negotiating Committee consisting of Heidi Kuhn, John Vessey, Mike Strahm, Mike Morgan, Lawrence Cox, and Alex Jack.

Again, in order to be able to rationally compare the execution of the QSA with not executing it, the IID and its landowners / beneficiaries will need DOI to address the above unknowns immediately (Salton Sea and the definition and application of "consumptive use").

Sincerely,

Ben and Margaret Abatti
El Centro CA

PT Cameron and DS Hannon
Brawley, CA

Ann Kelley Elmore Ranches
Brawley, CA

John Elmore
Brawley, CA

Marie F. Emanuelli
Brawley, CA

Walter J and Toni F Heltz
Imperial, CA.

John, Stephen, and Heddy Jordan and Joy Kramer, Brawley, CA

MW Morgan, ME Harthill, and J Mason, Brawley, CA

Mark and Marcia Osterkamp
Brawley, CA

James and Heidi Kuhn
El Centro, CA

Basin Partners
Santa Maria, CA

Steven G. Dahm
Brawley, CA

Howard Elmore and Richard Elmore, Brawley, CA

Don and Mary Emanuelli
Brawley, CA

Foster Family Partners
Yorba Linda, CA

Jack Bros. and McBurney Inc
Brawley, CA

BB Meyer, JR Benson,
Brawley, CA

John R. Norton
Phoenix, AZ

PVC Farms
Brawley, CA

(partial list)

Robert and Carol Ann Wilson
Brawley, CA

Ernest, Clifford, Michael, and Rodney Strahm, Holtville, CA

Vessey & Company, Inc.
El Centro, CA

John and Patricia Veysey
Brawley, CA

Rudy and Renita Schaffner
Holtville, CA.

Roy and Marion Schaffner
Holtville, CA

Scaroni Properties, Inc.
Heber, CA

Jack and Janet Rutherford
Brawley, CA

JC, SL Rutherford, et al.
Brawley, CA

Encl. Letter to landowners

c.

MWD
Ellison, Schneider & Harris
2015 H Street
Sacramento, CA 95814

SDCWA
Daniel J. Hentschke
4677 Overland Avenue
San Diego, CA 92123

County of Imperial
County Counsel's Office
940 Main Street, Suite 205
El Centro, CA 92243

Robert Johnson, Regional Director
PO Box 61470
Boulder City, NV 89006-1470

Ms. Lauren Grizzle
IVWUA
1036 Capra Way
Fallbrook, CA 92028

CVWD
Redwine & Sherrill
1950 Market Street
Riverside, CA 92501

Salton Sea Authority
Tom Kirk
78-401 Highway 111, Suite F
La Quinta, CA 92253-2056

Counsel for IID
Horton, Knox, Carter & Foote
895 Broadway, Suite 101
El Centro, CA 92243

Celeste Cantu, SWRCB,
In re: Petition under Permit 76433, Application No. 7482)
PO Box 100
Sacramento, CA 95814

Palo Verde Irrigation District
180 West 14th Avenue
Blythe, CA 92225

THE IMPERIAL GROUP

December 27, 2002

Dear Imperial County landowner:

We are members of an agricultural landowner group in Imperial County. We are writing to you because your name and address is on a publicly available list of agricultural or rural landowners who pay property taxes to Imperial County. We are also trying to contact domestic users who pay water availability charges, but the Imperial Irrigation District has refused to provide that information to us.

We are writing to you about the proposed transfer of water from the Imperial Irrigation District (IID) to San Diego County. We hope that working in cooperation with other agricultural and water organizations, we can promote a consensus among the farming and agricultural water interests in Imperial County. You may be aware of the water transfer from media accounts, but as far as we understand none of the parties negotiating the transfer thought it was important to provide any formal notice or details to the landowners in the Valley. Historically, agricultural (i.e., non-municipal) landowners paid over 95% of the cost of the water supplied by IID.

While we generally support the transfer of conserved water, we are concerned about many of the details of the proposed transfer, including how much money San Diego County is promising to pay for the conserved water, who will pay for the environmental mitigation required, how large of a cut IID intends to keep for itself, and the socioeconomic impacts of the transfer. It seems that without participation by the lands (i.e., landowners) for whom the Imperial Irrigation District claims to hold the water rights in trust, the transfer is missing a necessary party at the table. <u>One of our primary concerns is that all landowners share proportionately in the transfer proceeds.</u> What we are striving for is a system where landowners receive transfer moneys on a <u>per acre basis</u>, and <u>not</u> allow the IID to pick and choose landowners, <u>not</u> have landowners bid against each other, and <u>not limit</u> the money to only those who choose or are able to fallow.

The United States Supreme Court recognized in the <u>Bryant v. Yellen</u> case (160 acre limitation case) that landowners in Imperial Valley are the beneficiaries of the water rights, which IID is simply holding in trust. In other words, the rights are to benefit the landowners – not the government. We have tried and hope to continue to work with the County of Imperial and the municipalities in Imperial County, who

stand on a similar footing on behalf of the municipal and other non-agricultural landowners. As for the socioeconomic effects of the transfer (if it happens), we plan to use a portion of any financial benefits we receive from the transfer to create a Public Charitable Foundation with special emphasis on education for the benefit of all citizens of Imperial County. We believe the environmental concerns can be addressed in a similar fashion.

Even if the San Diego transfer does not go forward, the Imperial Group is committed to strengthening the role the landowners play in administering the water rights IID holds in trust for their benefit. We hope we can count on your support for such a concept. Our fellow group members and we represent approximately 100,000 acres of land in the Imperial Valley. If you are interested in being kept informed of the Imperial Group's progress on behalf of the water rights beneficiaries, please complete and return the enclosed postcard.

Sincerely,

Ben and Margaret Abatti
El Centro CA

PT Cameron and DS Hannon
Brawley, CA

Ann Kelley Elmore Ranches
Brawley, CA

John Elmore
Brawley, CA

Marie F. Emanuelli
Brawley, CA

Walter J and Toni F Holtz
Imperial, CA

John, Stephen, and Heddy Jordan and Joy Kramer, Brawley, CA

MW Morgan, ME Harthill, and J Mason.
Brawley, CA

Mark and Marcia Osterkamp
Brawley, CA

James and Heidi Kuhn
El Centro, CA

Basin Partners
Santa Maria, CA

Steven G. Dahm
Brawley, CA

Howard Elmore and Richard Elmore
Brawley, CA

Don and Mary Emanuelli
Brawley, CA

Foster Family Partners
Yorba Linda, CA

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Rudy and Renita Schaffner
Holtville, CA

Roy and Marion Schaffner
Holtville, CA

Scavoni Properties, Inc.
Heber, CA

Jack and Janet Rutherford
Brawley, CA

JC, SL Rutherford, et al.
Brawley, CA

Water Exchange: About The Exchange

Imperial Group farmers have taken the initiative by addressing the problem of how to manage their water use and make farming decisions during periods of reduction in water caused by the QSA or other water shortages that may occur in the future. The farmers are developing a water management system called the Imperial Valley Water Exchange. This is in response, in part, to the concerns identified by Prof. Hanemann.

The Exchange relies on publicly available data. All farming lands in the Imperial Valley are included in the Exchange. The Imperial Group advisors are designing the Exchange so it will be a useful program for farmers and they will constantly be adding information to the Exchange. This in turn will make the farmer more efficient because he/she can compare his/her farming practices with practices of the past and other farmers in the Imperial Valley. The farmer can use the Exchange for his/her own business purposes. It is not designed for the convenience of any particular staff or bureaucracy.

There are a number of assumptions and constraints in the Exchange that can easily be modified. It is best, however, that these modifications to the Exchange occur as the farming community develops experience with the Exchange.

BENEFITS TO THE FARMER
Farmers throughout the Valley will discover a number of direct benefits that they may gain by using the Exchange. They will have the ability to:

- Determine how much water is available for use at any given point in time.
- Determine where additional water can be obtained when needed.
- Better manage fields thus optimizing production.
- Increase economic returns from agricultural operations.
- Obtain information such as specific field data, gates and canals, soil types, and parcel maps.

PRINCIPAL FEATURES OF THE EXCHANGE
The Exchange includes a water-ordering system, a water transfer mechanism and an accounting system. Additional features can be added as Farmers request them. The principal features in the Exchange are the following:

Delivery Orders: The Exchange allows the Farmer to choose the amount of water he/she wants delivered to a specified gate, when he/she wants it delivered, what field he/she wants it delivered to, and the specific crop in that field.

Transfers: There are two types or transfers: Public or Private. A public transfer is between the Farmer and the Exchange. The Farmer may release water that is not needed back to the Exchange or acquire more if needed. A private transfer is between the Farmer and another Farmer.

My Parcels: The Imperial Group Advisors have used the Assessor's Parcel System as a base because it represents land ownership. There is a topographical map, an air photomap, and a soils map. In order to make the program most useful it is important that the name of each individual field be attached to the appropriate Assessor Parcel. The farmer can also attach the water card for each individual field to the appropriate Assessor Parcel. The farmer-developed Water Conservation Program is still in development but it is contemplated that the Imperial Group program will be similar to the voluntary conservation program developed by the Monterey County Water Agency. See sample Agricultural Water Conservation Plan form from the Monterey County Water Resources Agency website www.mcwra.co.monterey.ca.us/forms/forms_ag.htm

Tools: Allows the farmer to review reports of crop and water use histories by field, gate, or month. The farmer can view and compare his/her soil type and his/her water conservation activities with the rest of the valley. The water tools also discuss potential QSA reductions in water flows into the Imperial Valley and the impact on each farmer. We are still developing the Water Conservation Reports but again it is expected the Reports will be similar to the Reports developed for farmers by the Monterey County Water Resources Agency. Download a PDF of the recent Summary report from the Monterey County Water Resources Agency website www.mcwra.co.monterey.ca.us/ and click on the Available Data and Reports tab.

Accounting System: The rudiments of a new Accounting System for IID are spread throughout the Water Exchange. The Imperial Group fully expects significant modifications in the System as the Exchange undergoes further refinements as farmers give the Imperial Group more ideas. However, an example of a monthly invoice is found in the Water Tools Section.

Demo Accounts: To find out how the Exchange works please visit www.ivwe.net and log in using one of the following demo account numbers and password:

Username: famerbob
Password: 123456
or
Username: farmerjose
Password: 123456

IMPERIAL IRRIGATION DISTRICT

OPERATING HEADQUARTERS • P. O. BOX 937 • IMPERIAL, CALIFORNIA 92251

October 9, 2009

Ms. Lorri Gray-Lee
Bureau of Reclamation
Lower Colorado Regional Office
Attn BC00-4200
P.O. Box 61470
Boulder City, NV 89006-1470

Subject: IID Estimates of Diversion – Colorado River 2010
(Ref. BCOO-4226/WTR 4.03)

Dear Ms. Gray-Lee:

This letter responds to the Bureau of Reclamation's (Reclamation's) request to the Imperial Irrigation District (IID) for an estimate of IID's 2010 expected water use. This estimate constitutes IID's water "order" for 2010. This letter utilizes the *Accounting Methodology for IID Canal Losses Key Terms of Agreement* dated October 3, 2007 between IID and Reclamation. Should there be any changes to this methodology, it may or may not require further revision to the 2010 water order.

This water order should be considered by Reclamation in the context of the signed Quantification Settlement Agreement (QSA) and the reservation of legal positions contained in the dismissal of IID v. USA, et al. As historically recognized by Reclamation and the position of many other Colorado River contractors, water orders submitted in advance of the water year are merely estimates of anticipated water use that may need adjustment based on a wide variety of variables that impact water use during the course of a year. No Colorado River contractor can predict exactly what it will need the following year; it can only make an educated guess. Thus, water orders may require subsequent revision and should not be perceived as a volume limitation on the annual exercise of the water right.

Similarly, the exact volume and proposed uses of conserved water cannot be determined or accurately predicted in advance of any water conservation program's startup and final contracting. The final calculation of actual conserved water yields are dependent on year-end crop water use, rainfall, and delivery records that are not available prior to the conclusion of the current calendar year. Contracting parameters and conserved water requirements for 2010 are also dependent on Reclamation's or third-party measurement, reporting, and calculation of IID's diversions, return flow credits, and consumptive uses for the current and previous water years. The accuracy and timeliness of these final measurement and Decree Accounting records are a significant factor in IID's estimates, such that they may require subsequent revision and

should not be considered a volume limitation for purposes of IID's annual consumptive use or diversion calculation.

Thus, IID submits this water order without limiting IID's 2010 water rights. However, IID acknowledges that the QSA itself provides an annual volume limitation. Pursuant to that agreement, IID quantified its Priority 3 consumptive use at a maximum of 3.1 million acre-feet per year during the term of the QSA. IID anticipates (but does not limit itself except by the terms of the QSA) a consumptive use need of 2,773,800 acre-feet for 2010. Pursuant to the QSA, and assuming implementation of the QSA as agreed to by all other parties without material changes or failure, IID's estimated water order for 2010 is as follows:

IID 2010 Estimated Consumptive Use[1] Table in Acre-Feet (October 8, 2009)	
Priority 3 Cap	3,100,000
Miscellaneous PPR's	(11,500)
1988 IID/MWD Agreement[2]	(105,000)
IID/SDCWA Transfer	(70,000)
Salton Sea Mitigation	(35,000)
AAC Lining	(67,700)
IID/CVWD Transfer	(12,000)
IOPP Payback – 2006[3]	0
IOPP Payback – 2007[4]	0
Estimate of Additional Conserved Water[5,6,7,8]	(25,000)
Total IID 2010 Consumptive Use[1] Estimate	**2,773,800**

1 Consumptive uses include uses for agricultural, municipal, industrial, and storage purposes.

2 In 2007 (by agreement between IID and MWD), the annual conservation yield of the 1988 IID/MWD Agreement was fixed at 105,000 AF. This value may decrease in 2010 if certain Tailwater Return Systems are not continuously operated decreasing the project's conservation yield.

3 IID's 2006 IOPP payback obligation was completed in 2008 (two years ahead of schedule).

4 IID's 2007 IOPP payback obligation was completed in 2008 (two years ahead of schedule).

5 Additional conserved water uses include Intentionally Created Surplus (ICS), inadvertent overrun payback (IOP), early IOP, payback on behalf of another Colorado River contractor, groundwater storage, groundwater recharge, storage in the Salton Sea, and/or other allowed uses of conserved water. This estimate will be adjusted and specific uses defined more appropriately as the year progresses.

6 The truing up of all 2009 and 2010 fallowing and main canal seepage interception program yields after year-end may require an adjustment to this volume, as would approval of any requested II(B)(6) water to reduce IID's 2010 overrun obligation should it exist.

7 Final contracting of IID's 2010-2011 Fallowing Program and a true-up of all 2010 IID fallowing and other conservation program yields at year end will require an adjustment to this volume.

8 Pursuant to Section 3.B.9 of the Interim Guidelines for the Operation of Lake Powell and Lake Mead, IID's estimated volume of ICS water may decrease in 2010 with the appropriate notifications.

IID 2010 Estimated River Diversion Table in Acre-Feet	
Total IID 2010 Consumptive Use[1] Estimate	2,773,800
2010 Estimated Consumptive Use[1] met by LCWSP[9]	(4,380)
Total IID 2010 Consumptive Use[1] Estimate at River	2,769,420
2010 Calculated Return Flow Credit[10]	67,039
Total IID 2010 Calculated River Diversion Estimate	**2,836,459**

This 2,773,800 AF of consumptive use would require diversions of approximately 2,836,459 AF from the Colorado River in 2009 (given a calculated return flow credit estimate of 67,039 AF and taking into account 4,380 AF of exchange water from the Lower Colorado Water Supply Project (LCWSP)).[11] Any changes to the actual 2010 LCWSP pumping will, of necessity, result in changes to IID's actual Colorado River diversion and the associated return flow credit estimate. This annual water order estimate is based upon average conditions for rainfall, salinity and likely 2009 cropping patterns, including multiple cropped acreage and normal economic conditions in crop markets. Actual diversions in 2010 will, of necessity, reflect changed circumstances as they evolve including the final contracting of the 2010-2011 Fallowing Program and the truing up all IID fallowing and other conservation program yields at year end.

Finally, please let this letter serve as a request by IID for any unused apportionment available to California in 2010 under Section II(B)(6) of the United States Supreme Court Decree, to be used for reducing any inadvertent Overrun of IID's in 2010. Reclamation has informed IID that requests for II(B)(6) water need to be made in the calendar year in which II(B)(6) water is available, however IID believes that informing Reclamation as early as possible of its desire for II(B)(6) water can only be helpful to Reclamation's administration of the Colorado River. As such, IID provides this *early* notice of its request with the understanding that, similar to its inability to exactly predict now how much IID will consumptively use in 2010 because of the number of variables that can affect IID's consumptive use, Reclamation cannot accurately predict how much or whether there will be any II(B)(6) water available to satisfy IID's request. We appreciate Reclamation's willingness to keep IID informed about this, and IID will reiterate its request for II(B)(6) water in 2010 for Reclamation's convenience.

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9 2010 order not yet received from LCWSP contractors. However, IID estimates that it will be requested to maximize this project's yield, which is estimated to be 4,380 acre-feet annually for the only currently operating (west) pump. Actual pumped volumes and projections should be updated by Reclamation throughout 2010.

10 Based on Reclamation's CY2002 monthly use/diversion ratios as provided by Rod Carson in an email to Tina Shields dated 11/12/03 and reconfirmed by Paul Matuska 9/16/09. IID reserves its right to dispute the return flow formula utilized by Reclamation, but accepts Reclamation's ratios solely for the purpose of making an estimate in this letter.

11 See attachment entitled Imperial Irrigation District Estimated 2008 Water Diversion Requirements for a monthly breakdown of estimated diversions.

If you have any questions regarding these issues, please contact me at 760-339-9287.

Sincerely,

MICHAEL L. KING
Water Manager

MLK/ceb
Attachments

IID Estimated 2010 Water Diversion Requirements in Acre-Feet (10/8/2009)				
Month	Estimated IID Consumptive Use from CR	2002 Monthly Use Ratios (use/diversion)[1]	Estimated Monthly Return Flow	Calculated Imperial Dam Diversion Estimate
January	144,827	0.97548	3,640	148,468
February	163,635	0.99151	1,401	165,036
March	264,560	0.99621	1,006	265,567
April	321,891	0.98758	4,048	325,939
May	305,783	0.97212	8,770	314,553
June	274,056	0.98221	4,964	279,020
July	311,125	0.98807	3,757	314,881
August	269,847	0.97402	7,198	277,045
September	230,860	0.96538	8,279	239,139
October	210,088	0.95033	10,980	221,068
November	159,464	0.96883	5,130	164,594
December	113,284	0.93508	7,865	121,149
Sub-Total	2,769,420		67,039	2,836,459

IID 2010 Consumptive Use Estimate Met by LCWSP[2]	4,380
IID 2010 Consumptive Use Estimate (CU from CR+ LCWSP)	2,773,800

[1] CY2002 Bureau of Reclamation monthly use/diversion ratios as provided by Reclamation's Rod Carson in an email to Tina Shields dated 11/12/03 and reconfirmed by Paul Matuska 9/16/09. IID reserves its right to dispute the return flow formula utilized by Reclamation but accepts Reclamation's ratios solely for the purpose of making an estimate in this letter.

[2] 2009 order not yet received from LCWSP contractors. However, IID estimates that it will be requested to maximize this project's yield, which is estimated to be 4,380 acre-feet annually for the only currently operating (west) pump. Actual pumped volumes and projections should be updated by Reclamation throughout 2010.

THE METROPOLITAN WATER DISTRICT
OF SOUTHERN CALIFORNIA

Office of the General Manager

October 7, 2010

Ms. Lorri Gray-Lee
Regional Director
Lower Colorado Regional Office
U.S. Bureau of Reclamation
P.O. Box 61470
Boulder City, NV 89006-1470

Dear Ms. Gray-Lee:

Imperial Irrigation District's Proposal to Directly Deliver Colorado River Water to the Salton Sea

I am compelled to write again to respond to the rhetoric in Mr. Brian Brady's October 5 letter. My response will be brief, as I believe the points made in Metropolitan's letter of September 27 correctly address the illegal approach proposed by Imperial Irrigation District to replace its fallowing program with unused Colorado River water as the source of Salton Sea mitigation water.

Metropolitan has not abandoned the Quantification Settlement Agreement (QSA), but is fully performing all of its obligations under those agreements to implement the QSA transfers. Metropolitan is actively participating and supporting the appeal of the trial court ruling invalidating the QSA agreements. Metropolitan has also worked with Imperial Irrigation District (IID) and the Pacific Institute in an attempt to implement QSA agreements that would provide the California Department of Water Resources with additional funding for the Salton Sea. It is clear that the financial problem IID identifies as the reason for its proposed action is due to a shortfall in mitigation funding for IID's water transfers. That problem is in no way caused by any action or omission by Metropolitan. It is in fact IID's attempt to avoid its obligations under the QSA that threatens to undermine those agreements.

700 N. Alameda Street, Los Angeles, California 90012 • Mailing Address: Box 54153, Los Angeles, California 90054-0153 • Telephone (213) 217-6000

Metropolitan stands ready to work with the Bureau of Reclamation and IID on legal approaches to address these issues upon the dismissal of this proposal. Please feel free to contact me if you have any questions.

Sincerely,

Jeffrey Kightlinger
General Manager

cc:
Metropolitan Board of Directors
Gerald R. Zimmerman, Acting Executive Director, Colorado River Board of California
Herbert R. Guenther, Director, Arizona Department of Water Resources
Patricia Mulroy, General Manager, Southern Nevada Water Authority
Brian Brady, General Manager, Imperial Irrigation District
Maureen Stapleton, General Manager, San Diego County Water Authority
Steven B. Robbins, General Manager, Coachella Valley Water District
Victoria A. Whitney, Deputy Director, State Water Resources Control Board
Mark K. Cowin, Director, Department of Water Resources
Curt Taucher, QSA Joint Powers Authority, California Department of Fish and Game
Don A. Ostler, Executive Director, Upper Colorado River Commission
Kim Delfino, Defenders of Wildlife
Michael Cohen, Pacific Institute
Dan Taylor, Audubon California
Wally Leimgruber, Chairman, County of Imperial Board of Supervisors

IMPERIAL IRRIGATION DISTRICT
OPERATING HEADQUARTERS • P. O. BOX 937 • IMPERIAL, CALIFORNIA 92251

October 5, 2010

Ms. Lorri Gray-Lee
Bureau of Reclamation
Lower Colorado Regional Office
Attn BC00-4200
P.O. Box 61470
Boulder City, NV 89006-1470

Dear Ms. Gray-Lee:

Re: MWD Opposition To QSA Mitigation

The Imperial Irrigation District (IID) has received and reviewed with interest the September 27, 2010 letter to your attention from the Metropolitan Water District of Southern California (MWD) (the MWD response letter) concerning IID's plans to preserve the Quantification Settlement Agreement (QSA), benefit the economically beleaguered QSA Joint Powers Authority and satisfy required mitigation activities consistent with the QSA agreements. The MWD response letter is as noteworthy for what is not addressed and what is described incorrectly as for what is stated. MWD opposes IID consumptive use in 2010 for storage in the Salton Sea to enable the satisfaction of 2011 and half of 2012 QSA mitigation requirements that are otherwise likely to be unattainable and to reduce QSA mitigation costs to benefit all QSA parties with no economic gain to IID. MWD challenges whether such use is a "beneficial use" under the "Federal Law of the River" in total disregard of the QSA settlement that took so much collective effort to reach. It also attempts to use its intentionally created surplus (ICS) stored water (a program enabled by the QSA peace treaties) as a club to threaten lower Lake Mead elevations and export an intra-California issue to the other Colorado River Basin States. This bad behavior should not be countenanced by Reclamation. I apologize for the length of this letter and the length of the citations in it, but MWD's failure to address the basis and justification for IID's actions, and MWD's mischaracterizations require correction supported by substantiation.

The Glaring Omission In The MWD Response Letter

The MWD response letter recognizes the QSA requirement for Salton Sea mitigation and the legitimacy of IID using conserved water to satisfy QSA mitigation requirements for impacts on the Salton Sea, but disputes the legitimacy of IID consumptively using water within its 3.1 maf a cap to accomplish the same required purpose. MWD General Manager Jeff Kightlinger is recently quoted making this point bluntly: "We agreed in the Quantification Settlement Agreement that IID could use water it conserved as mitigation for transfer, so IID has to go and conserve that water and then put it into the sea as mitigation water." (Imperial Valley Press, 09/24/2010.) In reality, MWD expressly promised in the QSA agreements to recognize **either IID conserved water or IID consumptive use water as acceptable** to satisfy QSA mitigation requirements. MWD bargained for a cap on total IID consumptive use, not for restrictions on what IID could do within its cap to mitigate QSA impacts. In fact, MWD's promise regarding mitigation water, conserved or consumptive, is in the exact same provision and the exact same sentence and considers both sources to be identical. The IID/MWD Acquisition Agreement states in section 16.2 (emphasis added):

> MWD also agrees that it *will not oppose* (but shall not be required to support) IID's position that it has the right to *Consumptive Use* of Colorado River Water *or* IID created *Conserved Water to mitigate environmental impacts* resulting from the acquisition or transfer of conserved water contemplated by the QSA.

What is remarkable is that MWD now blithely breaches this express promise to not oppose and over the last six weeks, up to and including the MWD response letter, completely ignores its express promise and refuses to explain why it does not mean what it says. In an effort to "collaborate," as MWD suggests is the preferred path, IID has repeatedly advised MWD not only what IID thinks it is allowed to do under the QSA, but why IID believes that MWD has agreed not to oppose this effort. Collaboration has not happened because, to this date, MWD has stonewalled and refused to advise why its agreement does not mean what it says.

Satisfaction of Required QSA Mitigation Is An Allowed Beneficial Use

MWD and IID have a fundamental disagreement about the scope of IID-allowed beneficial use under IID's federal contract and preserved state law rights. MWD breezily asserts that the phrase "potable and irrigation purposes" has a literal and restrictive meaning, with no room for the many other beneficial purposes that IID and all other Colorado River water users regularly use their water for, consistent with the state laws where they are located. There is ample authority to contradict that absurd conclusion, but it is not necessary to do that now because environmental mitigation of the impacts of creating conserved water for transfer under the QSA is an agreed-upon beneficial use and an allowed consumptive use under the QSA agreements, which were to settle disputes between IID and MWD. As noted above, in the QSA agreements MWD agreed not to assert that there was any difference between mitigation water from conservation or consumptive use nor oppose the use of either. MWD also promised, in the absence of IID trying to transfer additional water to transferees other than MWD, to "not (i) pursue any legislative, administrative or judicial

proceeding, or take any other action that would reduce IID's Consumptive Use entitlement." (IID/MWD Acquisition Agreement section 16.1.) MWD is not free to pick and choose the clauses in the QSA agreements that it now wants to ignore.

The MWD response letter's reference to the Colorado River Water Delivery Agreement is actually an incomplete reference to footnote 5 to Exhibit B to that agreement, which says nothing about mitigation water being generated from conservation or consumptive use. Nothing in the Colorado River Water Delivery Agreement requires conserved water from IID be used to meet QSA mitigation obligations The footnote requirement of "non-Colorado River sources" and the footnote acknowledgment that this requirement "may be provided by exchange" is to support Reclamation accounting desires and does not support the MWD argument. Footnote 10 to Exhibit B confirms that the "exchange" and the mitigation water "transfer" to implement the exchange, do not require diversion into the Colorado River Aqueduct. IID, San Diego County Water Authority and Coachella Valley Water District contracted with each other in 2003 in their QSA agreements to "transfer" and "exchange" water (without actually moving any water, as authorized by Reclamation) to enable the required QSA mitigation to be accounted for, and that paper transfer and exchange is implemented each year under those agreements. Meanwhile, mitigation water actually reaches the Salton Sea since 2003 via direct diversion by IID for that purpose. IID diversion to storage in 2010 for mitigation in 2011 and the first six months of 2012 falls within the exchange agreements. Furthermore, the Colorado River Water Delivery Agreement confirms in section 2.a. that the Secretary *shall* deliver "not more than a consumptive use amount of 3.1 million acre feet per year" to IID. MWD has no right to ask, and Reclamation has no basis to agree with MWD, that IID's consumptive use should be less than 3.1 million acre feet, other than for transfers to MWD, SDCWA and CVWD and other reductions under the QSA agreements.

MWD's Retreat From The QSA

IID does not know when or why MWD determined to abandon the QSA, but that it has done so is becoming increasingly clear. According to the MWD response letter, the mitigation obligation is only IID's: "Metropolitan recognizes the importance of Imperial's obligations to mitigate," and the QSA mitigation obligations should not touch MWD because "Imperial, Coachella, and San Diego are required to fund and implement mitigation measures in compliance with California law to proceed with **their** QSA water transfers, including provisions of mitigation water to the Salton Sea." They also reference the QSA "funding parties," a euphemism presumably meaning anyone but MWD. Contrast this with the 2005 Appellate Court submittal by MWD in the QSA litigation opposing the extraordinary writ requested by the county of Imperial:

> "Here, there is no question that the County's lawsuits in Case 00082 and 00876 would impair the contract rights of Metropolitan and CVWD for the acquisition of 100,000 AF of Colorado River water-enough water for 200,000 families or three-quarters of a million people. The relief that the County prays for in Case 00082 is to set aside the SWRCB's Order approving the joint application of IID and

> SDCWA, and enjoin any transfer of water until the SWRCB reapproves the transfer and imposes additional mitigation."

MWD also misdescribes the SWRCB required mitigation in its response letter in an attempt to persuade Reclamation that the SWRCB wanted mitigation water to come from IID fallowing. In fact, the SWRCB did not even care if the mitigation water came from IID:

> As lead agency under CEQA, IID has prepared an EIR, which analyzes the potential impacts of the project on the environment, including the Salton Sea. [Cite] As stated in section 3.8 of this order, IID also has prepared an HCP in support of its applications for permits that would authorize the incidental take of these species in connection with the transfer. [Cite] The HCP includes a Salton Sea Habitat Conservation Strategy (SSHCS), which proposes to mitigate the impacts of the transfer on the Salton Sea *by generating water in some fashion* to replace water that will no longer flow to the Sea as a result of the proposed transfer.
>
> Although providing replacement water in accordance with the SSHCS will be a condition of approval that is binding on IID, *we do not mean to imply that IID necessarily must supply the replacement water under its own water rights in order to satisfy this requirement.* Consistent with the provisions of the SSHCS, which does not specify the source of replacement water, IID may satisfy this requirement using water from other sources. Moreover, the imposition of this requirement on IID is not intended to and should not be construed as a determination of the proper allocation of responsibility for mitigating the environmental impacts of the transfer as between IID and SDCWA, or a determination of the extent to which it may be appropriate for IID to obtain assistance in meeting mitigation requirements from federal or state grants or from any other third party. *Similarly, any references in this order to required mitigation measures are not intended to be read as requirements that IID provide the funding for the mitigation, or that IID must itself implement the mitigation. Mitigation may be paid for or implemented by a party other than IID pursuant to the IID/SDCWA transfer agreement, the QSA, or any other agreement.* The mitigation measured required by this order must be funded and implemented if petitioners choose to proceed with the transfer, irrespective of who pays for or implements the mitigation.

(SWRCB Order, pp. 24-25, emphasis added.)

The QSA itself in section 6.2(2)(iii) acknowledges the importance of each QSA party accepting, complying, performing and paying for the required mitigation measures imposed by a resource agency, and in section 6.2(15) that a material failure regarding a resource approval would cause irreparable injury and irreparable harm to the public interest.

QSA Mitigation Costs and Payments

As more fully described in IID's letter of September 20, 2010, it is not realistic to assume that IID can enter farmer contracts as of July 1, 2011, in the face of the invalidation of the QSA, a stay of judgment potentially expiring mid-summer 2011 and the lack of assurance of mitigation funding by the QSA Joint Powers Authority. Under the QSA-JPA Agreement, IID is to be paid by the QSA Joint Powers Authority $4,515, 654 for Salton Sea mitigation water in 2011 and $5,219,814 in 2012, if the mitigation water is created by fallowing. Storage of water by IID in the Salton Sea in 2010 for QSA mitigation use in 2011 and half of 2012 will reduce the payment obligation of the QSA Joint Powers Authority by more than $4 million in 2011, and by more than $2 million for half of 2012. The significant savings of over $6 million in mitigation costs will not inure to IID's benefit; rather, the QSA Joint Powers Authority will retain the savings to use for other QSA-required mitigation expenses. In the face of the litigation uncertainty, and state QSA-JPA agreement funding uncertainty, this is a very important short-term savings. In fact, IID's proposed mitigation water approach may be the only method available to satisfy required mitigation for 2011 and 2012. In the absence of mitigation, the QSA will certainly fail and the settlements unravel. MWD's response to this emerging crisis is to identify it as other QSA parties' problem, not MWD's, and ignore its agreement with IID.

Storage In The Salton Sea

The MWD response letter also completely ignores the propriety of storage in the Salton Sea as a tool for preserving water for mitigation in future years. As mentioned in the IID letter of September 20, 2010, storage is a recognized conservation activity, and Salton Sea storage is as well. In 2004, 2005 and 2006, Reclamation asked IID to assist it through IID's temporary storage of Reclamation Colorado River water in the Salton Sea. Reclamation not only concluded that the storage was allowed and beneficial, but that it was such a useful conservation activity that "withdrawal" from storage by Reclamation, through IID cooperation, entitled IID to receive an additional 25-percent credit against Exhibit C payback requirements in addition to Reclamation's storage withdrawals.

> This letter serves to document the agreement between the Imperial Irrigation District (IID) and the Bureau of Reclamation regarding the temporary re-regulation of certain Colorado River flows, captured at Reclamation's request and conveyed to the Salton Sea for temporary storage.
>
> In the latter part of 2004 and the early part of 2005, in response to heavy rainfall occurring in a watershed that is tributary to the lower

> Colorado River, Reclamation released water from Lake Havasu to protect the integrity of Parker Dam. Also, as a result of these rainstorms, water ordered by entitlement holders and released from Hoover Dam was not diverted. In an effort to prevent these releases from being lost to beneficial use within the United States as excess flows to the NIB, and in light of the current storage capacity limitation at Senator Wash Reservoir, Reclamation requested that IID capture a portion of this water and convey it to the Salton Sea.
>
> This Letter Agreement sets forth the understanding between Reclamation and IID relating to the temporary re-regulation of Colorado River water and the capture, conveyance, and temporary storage of this water by IID in 2004, 2005 and 2006.
>
> 1.1 The quantity of Colorado River water temporarily re-regulated by Reclamation and captured, conveyed and temporarily stored by IID at the request of Reclamation in 2004 was 15,880 acre-feet . . . . IID conveyed this water to the Salton Sea in 2004.
>
> 1.2 The quantity of Colorado River water temporarily re-regulated by Reclamation and captured, conveyed and temporarily stored by IID at the request of Reclamation in 2005 was 21,476 acre-feet . . . . IID conveyed this water to the Salton Sea in 2005.

Reclamation Letter Agreement, June 5, 2006.

IID's current use of Salton Sea storage will inure to all QSA parties' benefit, with no gain to IID, by utilizing a less expensive source of mitigation water expressly contemplated and made part of the QSA agreements.

MWD's Coercive Use of The ICS Privilege

The MWD response letter needs to be recognized for what it is: a blatant threat to withdraw ICS water to the detriment of others if MWD cannot persuade Reclamation to limit IID's consumptive use cap beyond what the QSA settlement and QSA agreements require. That MWD attempts to convert an intra-California disagreement into a Basin-wide controversy is not surprising since its contract with the California agencies is so clear. But that MWD would be so bold as to mislead the recipients of its response letter *is* surprising. Consider the following: "The loss of that [mitigation] water **would require** Metropolitan to take delivery of its Internationally [sic] Created Surplus storage credits in Lake Mead." *Require*? What happened to the MWD water stored at Diamond Valley Lake, or in the Semitropic or other groundwater banks south of the Delta in the Central Valley, or in the Hayfield groundwater basin, or available from the Palo Verde Irrigation District? *Require*? No, just a threat that if MWD does not get its way, it will take its ICS water out of Lake Mead. So much for the mutual benefits of the ICS program. It is now known to be a weapon in the

hands of MWD to coerce support. MWD should be told that its disagreement with IID is inconsistent with its express promised in the QSA, is a matter that affects only California, and that Reclamation will do no more than assure that California remains limited to 4.4 mafa. MWD promised not to oppose what IID is proposing to do, and ICS withdrawal should not be available under the pretenses that MWD proffers.

Conclusion

MWD, IID and all other QSA parties agreed to terms, all of which matter. IID is entitled to consumptively use up to its QSA cap each year for lawful beneficial uses allowed by state law, especially when consistent with the provisions of the QSA, without MWD violating the express terms of the QSA agreements or attempting to leverage Reclamation or other Basin States to reduce IID's allowed consumptive use. That the subject of this dispute is about IID's efforts to save the QSA with no particular benefit of any kind to IID seems not to matter to MWD. It should matter, however, to Reclamation and the other Basin States. The QSA is on the brink of being killed by MWD over-reaching, even while IID is expending significant effort and money on litigating to protect this landmark water-sharing agreement.

I appreciate your consideration of the information provided in our September 20, 2010 letter and this letter. If you have any questions or would like to meet to discuss further, I am prepared to do so.

Very truly yours,

Brian J. Brady
General Manager

cc: Gerald R. Zimmerman, Acting Executive Director, Colorado River Board of California
Herbert R. Guenther, Director, Arizona Department of Water Resources
Patricia Mulroy, General Manager, Southern Nevada Water Agency
Jeffrey Kightlinger, General Manager, The Metropolitan Water District of Southern California
Maureen Stapleton, General Manager, San Diego County Water Authority
Steven B. Robbins, General Manager, Coachella Valley Water District
Victoria A. Whitney, Deputy Director, State Water Resources Control Board
Mark K. Cowin, Director, Department of Water Resources
Curt Taucher, QSA Joint Powers Authority, California Department of Fish and Game
Don Ostler, Upper Basin Commissioner
Kim Delfino, Defenders of Wildlife
Michael Cohen, Pacific Institute
Dan Taylor, Audubon California
Wally Leimgruber, Imperial County Board of Supervisors

SOUTHERN NEVADA WATER AUTHORITY
1001 South Valley View Boulevard • Las Vegas, NV 89153
(702) 258-3939 • snwa.com

October 4, 2010

Ms. Lorri Gray-Lee
Regional Director
U.S. Bureau of Reclamation
Lower Colorado Region
P.O. Box 61470
Boulder City, Nevada 89006-1470

Dear Ms. Gray-Lee:

The Southern Nevada Water Authority (SNWA) recently received a copy of the September 20, 2010, letter from the Imperial Irrigation District (IID) requesting your approval of their plan to use 41,250 acre-feet of Colorado River water to meet certain Quantification Settlement Agreement (QSA) environmental mitigation requirements in the Salton Sea. We also received a copy of the September 27, 2010, letter to you from the Metropolitan Water District of Southern California (Metropolitan) explaining their position concerning IID's letter of request. With the very real possibility of a shortage declaration in the Lower Colorado River in 2012, we feel that IID's proposed action is shortsighted and fails to abide by the spirit of conservation and cooperation among Colorado River entitlement holders that has prevailed over the last fifteen years.

As you know, the Colorado River is in the midst of an 11-year drought, the worst in recorded history, which has significantly reduced system contents and water stored in both Lake Mead and Lake Powell. This severe and persistent drought shows no signs of ending and Lake Mead is currently at 39% of capacity and elevation 1084' above mean sea level (msl), only 9 feet above elevation 1075' msl which will trigger the first shortage and reduce water supplies for Arizona and Nevada.

SNWA's concern with IID's cavalier proposal to drain an additional 41,250 acre-feet from Lake Mead at this juncture is compounded by the fact that we are in a race against time to construct a third intake into Lake Mead that will enable SNWA to access critical municipal water supplies. The Colorado River provides 90% of the water supply for two million residents in Southern Nevada and all of that water is conveyed through our intakes in Lake Mead. With Lake Mead's elevation just 34 feet above our first intake, every drop of water that can remain in Lake Mead helps to avert interruption of water supplies and serious impacts to the people of Southern Nevada.

In an effort to delay the onset and reduce the duration of such a shortage declaration, we have worked closely and continuously with water users in the other Colorado River Basin States and Reclamation over the past 15 years. The focus of the river community has been on developing and funding implementation of actions that help stretch Colorado River water supplies and

prevent shortage. Recent accomplishments and activities include: the 2007 Colorado River Interim Guidelines that provide for coordinated operation of lakes Mead and Powell and establish Intentionally Created Surplus (ICS), the construction of the Warren H. Brock Reservoir alongside the All American Canal to provide over three million acre-feet of system efficiency over the life of the project, the pilot operation of the Yuma Desalting Plant (YDP) to create System Efficiency ICS and further study the potential to use of the YDP to help maintain system storage, and the on-going efforts to explore Bi-national water management opportunities with the country of Mexico. All these efforts have helped provide flexibility to utilize, preserve, and enhance water supplies within the Colorado River System and help protect against shortages declarations. They have only been possible because of close coordination and cooperation among the Basin States water users and the Bureau of Reclamation.

It appears to us that the only "risk" that IID seeks to address with its proposal is the financial uncertainty created by legal cloud over the QSA and that other viable mechanisms exist for them to address this uncertainty. Given Metropolitan's written offer to work collaboratively to address this uncertainty within California, we believe that IID's proposal should not be implemented. The proposal will cause direct negative impacts to Lake Mead during a critical period of drought and hydrology in the Colorado River Basin and flies in the face of historic efforts of close cooperation among water users throughout the Colorado River Basin.

Sincerely,

P Mulroy

Patricia Mulroy
General Manager

cc: Brian Brady, General Manager, Imperial Irrigation District
George Caan, Executive Director, Colorado River Commission of Nevada
Herbert R. Guenther, Director, Arizona Department of Water Resources
Jeffrey Kightlinger, General Manager, Metropolitan Water District of Southern California
Don A. Ostler, Executive Director, Upper Colorado River Commission
Maureen Stapleton, General Manager, San Diego County Water Authority
Gerald R. Zimmerman, Acting Executive Director, Colorado River Board of California

THE METROPOLITAN WATER DISTRICT
OF SOUTHERN CALIFORNIA

Office of the General Manager

September 27, 2010

Ms. Lorri Gray-Lee
Regional Director
Lower Colorado Regional Office
U.S. Bureau of Reclamation
P.O. Box 61470
Boulder City, NV 89006-1470

Dear Ms. Gray-Lee:

Imperial Irrigation District's Intention to Directly Deliver Colorado River Water to the Salton Sea

The Metropolitan Water District of Southern California (Metropolitan) has received a copy of the Imperial Irrigation District's (Imperial) September 20, 2010 letter to you providing its rationale for its proposal to divert an additional 41,250 acre-feet from the Colorado River for direct delivery to the Salton Sea during calendar year 2010. A copy of the letter is enclosed for your reference.

Metropolitan recognizes the importance of Imperial's obligations to mitigate the impacts of its water transfers on the Salton Sea, but objects to the proposal to replace conserved water with additional diversions of Colorado River water. This proposed use of additional Colorado River water is precluded by the applicable federal law and contracts. Such an action would reduce urban Southern California's water supply by the same 41,250 acre-feet this year. Not only would Metropolitan be directly impacted by Imperial's proposed action, but all Colorado River Basin States would be impacted because of the additional drawdown from Lake Mead that would result as Metropolitan replaces the diverted water with other water available to Metropolitan. Metropolitan urges the Bureau of Reclamation to deny Imperial's request to deliver additional water to the Salton Sea in 2010. Our position is summarized below.

700 N. Alameda Street, Los Angeles, California 90012 • Mailing Address: Box 54153, Los Angeles, California 90054-0153 • Telephone (213) 217-6000

Imperial Is Precluded From Directly Using Its Colorado River Entitlement for Salton Sea Mitigation

The Boulder Canyon Project Act controls the delivery and use of Colorado River water supplies in the Lower Basin. Pursuant to Section 5 of the Act, Imperial has a contract for the delivery of Colorado River water in an amount "reasonably required for potable and irrigation purposes within the boundaries of the District." Imperial shares its right to use of California's Colorado River entitlement with other California agencies based on the 1931 Seven Party Agreement that is incorporated in its Section 5 contract. Within the priority system adopted in the Seven Party Agreement, water supplies that are unused by a senior priority holder are available to junior parties. As a junior priority holder to Imperial, Metropolitan is entitled to the use of Colorado River water that Imperial cannot put to potable and irrigation uses within its service area.

On October 10, 2003, the *Quantification Settlement Agreement* (QSA) and related agreements were executed by the Secretary of the Interior, Metropolitan, Imperial, Coachella Valley Water District (Coachella), and San Diego County Water Authority (San Diego) among other parties. These agreements allow for limited transfer of Colorado River water outside the Seven Party Agreement priority system between Imperial and San Diego. Imperial, Coachella, and San Diego are required to fund and implement mitigation measures in compliance with California law to proceed with their QSA water transfers, including the provision of mitigation water to the Salton Sea. The federal *Colorado River Water Delivery Agreement* (Water Delivery Agreement) specifies that this mitigation water "will only be from non-Colorado River sources." Imperial represented to California's State Water Resources Control Board that it would generate the mitigation water through a fallowing or other conservation program.[1]

Imperial's proposal to forego fallowing and divert additional Colorado River water to generate Salton Sea Mitigation Water violates the terms of its Section 5 contract and the Water Delivery Agreement. Furthermore, the change from using fallowing as a source of the mitigation water to direct diversion of additional Colorado River water increases the volume of water above the amount that would otherwise be used by Imperial to the detriment of junior California priority holders and the other Basin States. This diversion is not justified based on the financial uncertainty identified by Imperial as the basis for taking this action.

Imperial's Proposal Would Exacerbate Drought Conditions in the Colorado River Basin

As you know, Lake Mead is at an elevation of 1,085 feet, its lowest elevation since 1956. Imperial's proposed action increases its diversion of Colorado River water for an unauthorized use, thereby reducing the water available to other Colorado River water users. The result will be adverse impacts on Metropolitan and the other Basin States.

[1] The SWRCB order approving Imperial's transfer to San Diego states, "Although the [Salton Sea Habitat Conservation Strategy] does not specify the source of the replacement water, the only possible source identified during this proceeding was water conserved by fallowing land within IID." SWRCB Water Rights Order 2002-0013 (Revised), p. 44.

As a junior California priority rights holder, Metropolitan would be deprived of the additional water supply that would be available if Imperial continued to utilize fallowing to supply its mitigation obligation. The loss of that water would require Metropolitan to take delivery of its Internationally Created Surplus storage credits in Lake Mead. The result is a reduction in storage in the reservoir by 41,250 acre-feet by the end of this year. The additional diversion proposed by Imperial would increase the amount of Colorado River water needed by California at a time when the available amount in system storage is at extremely low levels. Imperial's concern about the continued financial viability of the mitigation program for the QSA water transfers does not justify changing its mitigation program to use the water supplies available to other Colorado River water users. It is clear that there is no technical or operational basis that limits the continued use of fallowing or other conservation measures to generate Salton Sea Mitigation Water. Under these circumstances, the diversion of water that would otherwise be used to meet municipal purposes in California or to reduce the risk of future shortages in the Lower Basin is unreasonable and unjustified.

Metropolitan Encourages Collaboration to Meet Water Supply and Financial Challenges

Over the last decade, the Colorado River Basin States and water users have been successful in developing new agreements and water conservation programs. These agreements include the Lower Colorado River Multi-Species Conservation Program, the 2007 Interim Guidelines, the construction of the Warren H. Brock Reservoir, and the pilot operation of the Yuma Desalting Plant, just to name a few. These actions were successful because of interagency cooperation and, when necessary, compromise to meet the water supply needs of the Colorado River Basin. Imperial's unilateral proposal is contrary to the spirit of collaboration that has become prevalent on the Colorado River, by proposing a win-lose action rather than working to develop a mutually beneficial proposal. Metropolitan is a party to the QSA and shares Imperial's concerns about the future use of California's Colorado River water supplies.

Unfortunately, the litigation-related issues that Imperial has raised in its letter will not be resolved by the diversion of additional Colorado River water to meet a portion of the Salton Sea mitigation obligation. Imperial's letter does not represent that the cost savings Imperial hopes to achieve will resolve the QSA mitigation funding problem. Instead, Imperial's unilateral proposal simply shifts a portion of the burden of addressing the problem to other parties that are not involved in the Salton Sea issues, including the other Basin States. Metropolitan suggests that protection of the Salton Sea must be addressed comprehensively by the State of California working together with the QSA funding parties, and not by piecemeal actions that fail to address the larger problem while adversely affecting the water supplies of others.

Conclusion

In conclusion, Imperial's proposed use of Colorado River water directly for Salton Sea-related environmental mitigation is not authorized by its delivery contract nor by the Quantification Settlement Agreement, and is, in fact, prohibited by the Water Delivery Agreement and the Law

of the River. The change from using conserved water to Colorado River water that would not otherwise be used by Imperial adversely affects the water supplies available to Metropolitan. This in turn impacts storage in Lake Mead and ultimately all the Basin States. There are other options available to Imperial that should be pursued in lieu of this proposal. Finally, this action would establish a dangerous precedent of allowing unauthorized water deliveries at a time when the Colorado River and Lake Mead are in very challenging conditions. For these reasons, Metropolitan urges Reclamation to not approve a revised calendar year 2010 diversion for Imperial that would allow Imperial to directly deliver any Colorado River water to the Salton Sea.

Sincerely,

Jeffrey Kightlinger
General Manager

Enclosure

cc w/o enclosure:

Metropolitan Board of Directors

Gerald R. Zimmerman, Acting Executive Director, Colorado River Board of California
Herbert R. Guenther, Director, Arizona Department of Water Resources
Patricia Mulroy, General Manager, Southern Nevada Water Authority
Brian Brady, General Manager, Imperial Irrigation District
Maureen Stapleton, General Manager, San Diego County Water Authority
Steven B. Robbins, General Manager, Coachella Valley Water District
Victoria A. Whitney, Deputy Director, State Water Resources Control Board
Mark K. Cowin, Director, Department of Water Resources
Curt Taucher, QSA Joint Powers Authority, California Department of Fish and Game
Don A. Ostler, Executive Director, Upper Colorado River Commission
Kim Delfino, Defenders of Wildlife
Michael Cohen, Pacific Institute
Dan Taylor, Audubon California
Wally Leimgruber, Chairman, County of Imperial Board of Supervisors

IMPERIAL IRRIGATION DISTRICT
GENERAL MANAGER'S OFFICE • P.O. BOX 937 • IMPERIAL, CA 92251

September 20, 2010

Ms. Lorri Gray-Lee
Bureau of Reclamation
Lower Colorado Regional Office
Attn BC00-4200
P.O. Box 61470
Boulder City, NV 89006-1470

Dear Lorri:

The Imperial Irrigation District ("IID") recently forwarded to you its estimate for consumptive use of Colorado River water for calendar year 2011 ("2011 water order"). The IID 2011 water order referenced the uncertainty caused by the pending QSA[1]-related litigation in connection with IID's 2010 consumptive use of Colorado River water to fulfill certain QSA environmental mitigation purposes. This letter is to provide you and the attached recipients a more salient explanation of the circumstances confronting IID and the rationale for IID's actions.

QSA Mitigation Requirements.

In connection with the water conservation and transfer activities undertaken by IID and others to implement the QSA, IID and other QSA parties are required to mitigate impacts on the environment. Mitigation is required by, among other things, the State Water Resources Control Board ("SWRCB") order approving the QSA water transfers, permits issued by the United States Fish and Wildlife Service ("USFWS") and California Department of Fish and Game ("CDFG"), and approvals made in connection with the requirements of CEQA and NEPA. IID is reimbursed for its expenditures on environmental mitigation by the QSA Joint Powers Authority pursuant to the QSA-JPA Agreement. Annual mitigation implementation activities are determinedby a technical committee comprised of representatives from IID, USFWS and CDFG. The QSA Joint Powers Authority approves the annual budget for the mitigation activities. The QSA Joint Powers Authority receives annual scheduled contributions from IID, CVWD and SDCWA and, if or when those funds are exhausted, the State of California, through CDFG, contracted in the QSA-JPA Agreement to pay the balance of mitigation costs.

[1] We reference the "QSA" as a shorthand for the suite of 35 agreements more formally called the Quantification Settlement Agreement and Related Agreements, except when a specific QSA agreement is involved, in which case we will reference its more commonly used name, e.g., the QSA-JPA Agreement, or the CRWDA.

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TELEPHONE (760) 339-9477 • FAX (760) 339-9392
WEB SITE: www.iid.com

From a water use perspective in connection with QSA mitigation activity, three primary activities are under way. Water is used to irrigate the replacement wetlands habitat created to mitigate the lost habitat resulting from the All-American Canal ("AAC") Lining Project; water is used to irrigate the managed marsh created to mitigate the lost drain habitat caused by the conservation of water which reduces flows in the IID drains; and Salton Sea mitigation water is used to replace the reduced inflows to the Salton Sea caused by the IID conserved water transfers to SDCWA. The first two requirements continue for the life of the QSA, while the SWRCB limited the Salton Sea mitigation water requirement to the first 15 years (through 2017). To date, IID has consumptively used Colorado River water to irrigate the AAC replacement wetlands habitat and the managed marsh drain habitat, and created Salton Sea mitigation water via a fallowing program paid for under the QSA-JPA Agreement, except that fallowing was not used and temporary consumptive use of Colorado River water was used by IID in 2004 and 2005 to mitigate in advance Salton Sea impacts for 2005 and 2006. The mitigation water created by fallowing has been obtained by IID through a fallowing program involving annual contracts with farmers. The contracts run from July 1 of one year to June 30 of the next year to match the timing of most Imperial Valley farm plans and lease renewal periods.

QSA-Related Litigation

As you know, the QSA was controversial when approved by IID in 2003, and several parties threatened litigation to challenge IID's right to approve and implement the QSA. (In fact, several lawsuits were prematurely filed even before IID approved the QSA.) Therefore, promptly after approving the QSA, IID commenced a validation action to validate its right to approve and implement the QSA contracts to which it was a party. Environmental and other challenges were subsequently filed against the IID and many of the other QSA parties.

All of the California lawsuits were coordinated in the Sacramento County Superior Court. Trial took place in late 2009, and a decision was rendered earlier this year. The Superior Court determined:

- The CDFG promise to pay for QSA mitigation costs, above costs paid for by IID, CVWD and SDCWA, if any, as stated in the QSA-JPA Agreement, is unconstitutional;
- The QSA-JPA Agreement is therefore invalid;
- The QSA, IID/SDCWA Transfer Agreement, IID/CWD Acquisition Agreement, IID/MWD Acquisition Agreement, Environmental Cost Sharing Agreement, Colorado River Water Delivery Agreement, Amendments to the 1988 IID/MWD Transfer Agreement, and the AAC Allocation Agreement are, therefore, also invalid.

Judgment of invalidity was entered on February 11, 2010. The Superior Court also decided that IID has the authority to do a QSA-type deal and that certain farmers' claims to water or money were denied. The Superior Court dismissed as moot all pending environmental challenges, including Superior Court challenges to NEPA and Clean Air Act compliance by the Secretary of Interior (allegedly required for Secretarial approval of the Colorado River Water Delivery Agreement and the AAC Allocation Agreement.) After the Superior Court signaled that the environmental challenges to the QSA were going to be dismissed for mootness, the County of Imperial and its Air District promptly sued the U.S. in the Federal District Court in San Diego for the identical NEPA and Clean Air Act alleged deficiencies.

IID and other QSA parties appealed the Superior Court judgment of invalidity, obtained an emergency stay and, on May 7, 2010, obtained a stay of the judgment that will last until the Appellate Court rules on the appeal. Cross-appeals were filed by the County, Air District, and others. Appellate briefing will be complete by mid-December 2010. Oral argument is expected during the first quarter of 2011, and a decision is expected to be announced by mid-year 2011. Should the Appellate Court reverse the judgment, trial may resume in 2011 on the remaining validity and environmental challenges, unless there are petitions for review filed with the California Supreme Court delaying trial resumption. If the judgment is affirmed, review will most likely be sought from the California Supreme Court, with another stay requested. It is not possible to predict whether the California Supreme Court will grant review to any party seeking it, or issue a stay. IID expects the pending federal action to be resolved by mid-2011 as well. Whether that resolution will result in an appeal or stay pending appeal is also difficult to predict.

QSA-Related Uncertainty

The pending QSA-related litigation, and especially the judgment of invalidity and anticipated appellate ruling in mid-2011, presents IID with several QSA implementation challenges. IID anticipates great difficulty in arranging for fallowing contracts that will run from July 1, 2011 to June 30, 2012. The solicitation period for such contracts starts soon and runs into the spring of 2011. IID cannot assure contracting farmers that IID will be able to use the conserved water created by fallowing during that period, or that IID will be paid for transferring that conserved water as required by the QSA. IID also faces a risk of not being reimbursed for mitigation activities for 2011 by the QSA Joint Powers Authority if the QSA-JPA Agreement is affirmed as an unconstitutional agreement and no further stay is granted. Finally, even if the stay continues and review by the California Supreme Court follows, or the judgment is reversed, IID still has concerns about the QSA-JPA Agreement obligations of CDFG. After execution of the QSA, and after IID implementation commenced, the California Legislature cancelled the continuing appropriation for the CDFG Preservation Fund--the appropriation identified by California Legislative Counsel as the basis for CDFG funding of its contingent QSA mitigation payment obligation--and CDFG has to date failed to provide any meaningful assurance to the QSA parties that it will perform its contractual and legislative obligations to pay for QSA mitigation if a judgment does not prevent it from doing so. Thus, IID and other QSA parties are engaged in a process to evaluate how to obtain

assurance of California performance or how to satisfy QSA mitigation obligations in the face of California's conduct. Consumptive use of Colorado River water by IID for mitigation purposes, when IID does not need to consumptively use the water for other purposes, is one available opportunity to reduce the cost of QSA mitigation and lessen the risk posed by the QSA-related litigation and cancellation of the continuing appropriation to CDFG.

Consumptive Use of Colorado River Water for QSA Mitigation Purposes

As noted above, IID has and will continue to use Colorado River water to satisfy QSA mitigation obligations (subject to agreed-upon reimbursement under the QSA-JPA Agreement) for the replacement AAC wetlands habitat and the managed marsh. In 2010, IID intends to consumptively use Colorado River water by temporarily storing it in the Salton Sea for later use to mitigate QSA impacts on the Salton Sea that require mitigation in 2011 and the first half of 2012. IID's consumptive use in 2010 for this purpose will be in the amount of 26,400 AF (the amount needed for 2011 mitigation) and 14,850 AF (the amounted needed for mitigation through June 30, 2012) for a total of 41,250 AF. This will enable IID to mitigate Salton Sea impacts for its 2011 and half of its 2012 conserved water transfers to SDCWA, without having to create 62,500 AF of mitigation water through fallowing contracts that would run through June 30, 2012. (The volume of mitigation water required, if created by fallowing, is greater than consumptive use volumes because the mitigation fallowing has to mitigate both the IID QSA transfer impacts and the mitigation fallowing impacts on the Salton Sea.) The QSA Joint Powers Authority will benefit from IID's sourcing mitigation water from stored consumptive use rather than fallowing by saving over $6.3 million in mitigation reimbursement expenses that would otherwise be paid to IID for this period. IID is in effect storing water in 2010 (in the Salton Sea) for use in 2011 and the first half of 2012 to meet mitigation requirements in those years. Storage in the Salton Sea for future use has been recognized and utilized by Reclamation in the past (see letter from Reclamation to IID dated June 5, 2006) and storage of water for future use has been recognized by Reclamation as a conservation activity (e.g. Reclamation recognized MWD use of Semiptropic stored water for payback conservation in 2005 and Arizona Central Arizona Project use of stored Colorado River water for payback conservation in 2008.)

Consumptive use of Colorado River water by IID for QSA mitigation purposes is an appropriate and prudent response to the present QSA litigation status. IID has been advised by Reclamation on numerous occasions that the QSA-created era of cooperation on the Colorado River enables Reclamation to approve activity by California Colorado River Contractors that is not opposed by other California Colorado River Contractors, not injurious or opposed by other Colorado River Basin States, and not injurious to the Colorado River. These circumstances are all present.

Through the foresight of the QSA parties and the specific terms of relevant QSA contracts, no California Colorado River Contractor opposes IID's consumptive use of Colorado River water for QSA environmental mitigation purposes. Specifically, the IID/MWD Acquisition Agreement

contains on pages 12-13, section 16.2, MWD's covenant to not oppose IID's consumptive use of Colorado River water for QSA environmental mitigation purposes.

> MWD also agrees that it will not oppose (but shall not be required to support) IID's position that it has the right to Consumptive Use of Colorado River Water or IID created Conserved Water to mitigate environmental impacts resulting from the acquisition or transfer of conserved water contemplated by the QSA.

The IID/CVWD Acquisition Agreement contains very similar language on page 14, section 14.3:

> CVWD also agrees that it will not oppose (but shall not be required to support) IID's position that it has the right to Consumptive Use of Colorado River Water or IID created Conserved Water to mitigate environmental impacts resulting from the acquisition or transfer of Conserved Water contemplated by the QSA as set forth in the ECSA and the Exhibits thereto.

IID's QSA agreed-upon Consumptive Use cap will remain at 3.1 mafa (less QSA reductions for Conserved Water transfers) and California's cap will remain at 4.4 mafa. Thus, neither any other Colorado River Basin State nor the Colorado River will be impacted by IID's QSA mitigation use of Colorado River water.

IID's consumptive use of Colorado River water for QSA environmental mitigation purposes is consistent with California and Western water law. Environmental mitigation of impacts caused by irrigation and by irrigation water conservation activities, including the impacts of transferring conserved irrigation water, is well recognized as an ancillary use to an irrigation water right. The SWRCB order approving the QSA conserved water transfers on the condition that certain environmental mitigation occur, reflects an indifference to the source of mitigation water used. The SWRCB even opined that environmental use is itself a reasonable and beneficial use not dependant on being an ancillary use. Certainly, historic use of Colorado River water for wildlife refuges, including at the Salton Sea, and other environmental benefits and mitigation is consistent with that SWRCB view.

<u>Conclusion</u>

IID has been and remains committed to preserving and fully implementing the QSA. It has incurred substantial expense to defend the QSA, and continues to do so. IID has also expended substantial funds in preparation for implementation of the increasing ramp-up of efficiency-created conserved water for transfer. IID seeks to fulfill all of its QSA transfer and mitigation obligations, and expects to obtain the full benefits in exchange. In light of the present uncertainty about the

QSA resulting from the status of the pending QSA-related litigation and the CDFG lack of mitigation payment assurance, and especially with respect to 2011 and 2012, consumptive use of Colorado River water by IID to fulfill QSA mitigation activities without increasing California's total use of Colorado River water is in the best interest of all QSA parties and the Colorado River Basin. IID appreciates Reclamation's support for this activity during this period of uncertainty.

Very truly yours,

Brian J. Brady
General Manager

cc: Gerald R. Zimmerman, Acting Executive Director, Colorado River Board of California
Herbert R. Guenther, Director, Arizona Department of Water Resources
Patricia Mulroy, General Manager, Southern Nevada Water Agency
Jeffrey Kightlinger, General Manager, The Metropolitan Water District of Southern California
Maureen Stapleton, General Manager, San Diego County Water Authority
Steven B. Robbins, General Manager, Coachella Valley Water District
Victoria A. Whitney, Deputy Director, State Water Resources Control Board
Mark K. Cowin, Director, Department of Water Resources
Curt Taucher, QSA Joint Powers Authority, California Department of Fish and Game
Don Ostler, Upper Basin Commissioner
Kim Delfino, Defenders of Wildlife
Michael Cohen, Pacific Institute
Dan Taylor, Audubon California
Wally Leimgruber, Chairman, County of Imperial Board of Supervisors

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IMPERIAL IRRIGATION DISTRICT

OPERATING HEADQUARTERS • P. O. BOX 937 • IMPERIAL, CALIFORNIA 92251

September 15, 2010

Ms. Lorri Gray
Bureau of Reclamation
Lower Colorado Regional Office
Attn BC00-4200
P.O. Box 61470
Boulder City, NV 89006-1470

Subject: IID Estimates of Diversion – Colorado River 2011
(Ref. BCOO-4226/WTR 4.03)

Dear Ms. Gray:

This letter responds to the Bureau of Reclamation's (Reclamation's) request to the Imperial Irrigation District (IID) for an estimate of IID's 2011 expected water use. This estimate constitutes IID's water "order" for 2011. This letter utilizes the *Accounting Methodology for IID Canal Losses Key Terms of Agreement* dated October 3, 2007 between IID and Reclamation. Should there be any changes to this methodology, it may or may not require further revision to the 2011 water order.

This water order should be considered by Reclamation in the context of the signed Quantification Settlement Agreement (QSA) and the reservation of legal positions contained in the dismissal of IID v. USA, et al. As historically recognized by Reclamation and the position of many other Colorado River contractors, water orders submitted in advance of the water year are merely estimates of anticipated water use that may need adjustment based on a wide variety of variables that impact water use during the course of a year. No Colorado River contractor can predict exactly what it will need the following year; it can only make an educated guess. Thus, water orders may require subsequent revision and should not be perceived as a volume limitation on the annual exercise of the water right. Similarly, the exact volume and proposed uses of conserved water cannot be determined or accurately predicted in advance of any water conservation program's startup and final contracting. The final calculation of actual conserved water yields are dependent on year-end crop water use, rainfall, and delivery records that are not available prior to the conclusion of the current calendar year. Contracting parameters and conserved water requirements for 2011 are also dependent on Reclamation's or third-party measurement, reporting, and calculation of IID's diversions, return flow credits, and consumptive uses for the current and previous water years. The accuracy and timeliness of these final measurement and Decree Accounting records are a significant factor in IID's estimates, such that they may require

subsequent revision and should not be considered a volume limitation for purposes of IID's annual consumptive use or diversion calculation.

Also significantly, for purposes of the 2011 estimate, there is some degree of uncertainty surrounding the QSA and implementation of the various agreements, transfers and environmental mitigation programs related to the QSA. As you know, on February 11, 2010, the Superior Court for the County of Sacramento entered a judgment that invalidated the QSA, the related water transfer agreements between IID and SDCWA, CVWD, and MWD, and invalidated the QSA-JPA Agreement related to funding for QSA related environmental mitigation. IID and others appealed the judgment and obtained a stay of that judgment that will last for the duration of the appeal. Appellate briefing will be complete by mid December, 2010, oral argument is expected in the first quarter of 2011, and a decision is expected by mid-year 2011. If the Judgment is reversed, trial will presumably resume in 2011 on matters not yet decided affecting validity and environmental review compliance. If the Judgment is affirmed, there may be requests for review by the California Supreme Court and for the granting of a stay during that period, but neither Supreme Court review nor a further stay is assured. IID also expects that the pending QSA-related litigation in the U.S. District Court in San Diego by the County of Imperial and its Air District against the U.S. and QSA signatories challenging the U.S. compliance with NEPA and the Clean Air Act prior to the Secretary's approval and execution of the CRWDA, and seeking to set aside that agreement, will also be completed in 2011.

Thus, for IID water conservation programs and mitigation water creation programs that rely on contracts with farmers, which utilize a July 1 to June 30 contract year consistent with most farm plans and leases, 2011 poses a significant contracting difficulty and significant risk to IID if it issues contracts for the July 1, 2011 to June 30, 2012 period. Furthermore, the QSA related uncertainty caused by the litigation also directly affects the funding ability and assurances of the QSA JPA for reimbursements to IID for implementing the required mitigation activities. This 2011 estimate of IID consumptive use and conserved water transfers attempts to take these uncertainties and risks into account as well.

Thus, IID submits this water order without limiting IID's 2011 water rights. However, IID acknowledges that the QSA itself, assuming its continued viability, provides an annual volume limitation. Pursuant to that agreement, IID quantified its Priority 3 consumptive use at a maximum of 3.1 million acre-feet per year during the term of the QSA. IID anticipates (but does not limit itself except by the terms of the QSA) a consumptive use need of 2,773,536 acre-feet for 2011. Pursuant to the QSA, and assuming implementation of the QSA as agreed to by all other parties without material changes or failure, IID's estimated water order for 2011 is as follows:

IID 2011 Estimated Consumptive Use[1] Table in Acre-Feet (September 15, 2010)	
Priority 3 Cap	3,100,000
Miscellaneous PPR's	(11,500)
1988 IID/MWD Agreement[2]	(105,000)
IID/SDCWA Transfer	(80,000)
Salton Sea Mitigation[3]	(0)
AAC Lining	(67,700)
IID/CVWD Transfer	(16,000)
Estimate of Additional Conserved Water[4,5,6,7]	(25,000)
Total IID 2011 Consumptive Use[1] Estimate	**2,794,800**

IID 2011 Estimated River Diversion Table in Acre-Feet	
Total IID 2011 Consumptive Use[1] Estimate	2,794,800
2011 Estimated Consumptive Use[1] met by LCWSP[8]	(4,380)
Total IID 2011 Consumptive Use[1] Estimate at River	**2,790,420**

1 Consumptive uses include uses for agricultural, municipal, industrial, environmental, environmental mitigation and storage purposes.

2 In 2007 (by agreement between IID and MWD), the annual conservation yield of the 1988 IID/MWD Agreement was fixed at 105,000 AF. This value may decrease in 2010 if certain Tailwater Return Systems are not continuously operated decreasing the project's conservation yield.

3 IID will consumptively use 26,400 AF in 2010, without exceeding IID's 2010 consumptive use limit, to deliver early mitigation water to the Salton Sea for 2011, in advance of the mitigation obligation for calendar year 2011, consistent with the early delivery of mitigation water to the Salton Sea by IID in 2004 and 2005 done at the request of Reclamation. This early delivery of mitigation water is for the purpose of reducing the cost of environmental mitigation in light of the QSA litigation concerns affecting mitigation funding by the State of California, and in light of the uncertainty IID faces in contracting to create mitigation water because of the QSA litigation.

4 Additional conserved water uses include Intentionally Created Surplus (ICS), inadvertent overrun payback (IOP), early IOP payback on behalf of another Colorado River contractor, groundwater storage, groundwater recharge, storage in the Salton Sea, delivery of ICS to meet water transfer obligations, and/or other allowed uses of conserved water. This estimate will be adjusted and specific uses defined more appropriately as the year progresses.

5 The truing up of all 2010 and 2011 fallowing and main canal seepage interception program yields after year-end may require an adjustment to this volume, as would approval of any requested II(B)(6) water to reduce IID's 2010 overrun obligation should it exist.

6 Final contracting of IID's 2011-2012 Fallowing Program and a true-up of all 2010 IID fallowing and other conservation program yields at year end will require an adjustment to this volume.

7 Pursuant to Section 3.B.9 of the Interim Guidelines for the Operation of Lake Powell and Lake Mead, IID's estimated volume of ICS water may decrease in 2011 with the appropriate notifications.

8 2011 order not yet received from LCWSP contractors. However, IID estimates that it will be requested to maximize this project's yield, which is estimated to be 4,380 acre-feet annually for the only currently operating (west) pump. Actual pumped volumes and projections should be updated by Reclamation throughout 2010.

This 2,773,536 AF of consumptive use at Imperial Dam (net of return flows) will require a larger volume diversion from the Colorado River in 2011 that is calculated based on IID's monthly diversion schedule. This monthly breakdown of diversion requirements will be provided under separate cover. Any changes to the actual 2011 LCWSP pumping will, of necessity, result in changes to IID's actual Colorado River diversion and the associated return flow credit estimate. This annual water order estimate is based upon average conditions for rainfall, salinity and likely 2011 cropping patterns, including multiple cropped acreage and normal economic conditions in crop markets. Actual diversions in 2011 will, of necessity, reflect changed circumstances as they evolve including the final contracting of the 2011-2012 Fallowing Program, the truing up all IID fallowing and other conservation program yields at year end, and the eventual developments in the QSA litigation.

Finally, please let this letter serve as a request by IID for any unused apportionment available to California in 2011 under Section II(B)(6) of the United States Supreme Court Decree, to be used for reducing any inadvertent Overrun of IID's in 2011. Reclamation has informed IID that requests for II(B)(6) water need to be made in the calendar year in which II(B)(6) water is available, however IID believes that informing Reclamation as early as possible of its desire for II(B)(6) water can only be helpful to Reclamation's administration of the Colorado River. As such, IID provides this *early* notice of its request with the understanding that, similar to its inability to exactly predict now how much IID will consumptively use in 2011 because of the number of variables that can affect IID's consumptive use, Reclamation cannot accurately predict how much or whether there will be any II(B)(6) water available to satisfy IID's request. We appreciate Reclamation's willingness to keep IID informed about this, and IID will reiterate its request for II(B)(6) water in 2011 for Reclamation's convenience.

If you have any questions regarding these issues, please contact Tina Shields at 760-339-9038.

Sincerely,

BRIAN J. BRADY
General Manager

United States Department of the Interior

BUREAU OF RECLAMATION
Lower Colorado Regional Office
P.O. Box 61470
Boulder City, NV 89006-1470

TAKE PRIDE IN AMERICA

IN REPLY REFER TO:

LC-4226
WTR-4.03

DEC 24 2009

CERTIFIED - RETURN RECEIPT REQUESTED

Mr. Brian J. Brady
General Manager
Imperial Irrigation District
P.O. Box 937
Imperial, CA 92251-0937

Subject: Approval of Calendar Year 2010 Diversion for the Imperial Irrigation District (District)

Dear Mr. Brady:

In accordance with Title 43, Code of Federal Regulations Part 417, this letter provides the District with the Bureau of Reclamation's determination regarding the District's proposed diversion and beneficial use of Colorado River water during calendar year 2010.

The Colorado River Water Delivery Agreement (CRWDA) quantifies Colorado River water use within the State of California. This letter serves as the approval of the diversion amounts for the District pursuant to the terms of the CRWDA.

Under the terms of the CRWDA and other agreements between interested parties within the State of California, the District has the right to consumptively use up to 2,793,800 acre-feet of water in calendar year 2010. Based upon the review of the factors relating to the estimate of diversions required by the District, Reclamation hereby approves the diversion of up to 2,860,800 acre-feet for use in the District's service area for 2010. The enclosed table details the data used to develop the District's approved diversion for 2010. This diversion approval results in an estimated consumptive use of 2,793,800 acre-feet for calendar year 2010.

Reclamation has received the District's 2010 plan for the creation of Extraordinary Conservation Intentionally Created Surplus (ICS). The approved 2010 diversion contained in this letter does not include conservation for ICS. The District's 2010 approved amount will be amended to address a reduction for ICS upon Reclamation's approval of the District's calendar year 2010 ICS plan.

Reclamation will monitor and project diversions and consumptive use of Colorado River water during calendar year 2010 in an effort to ensure the entitlement of each authorized user is not exceeded. Beginning in February 2010, these projections are available to water users on a daily basis on Reclamation's web site: www.usbr.gov/lc/region/g4000/hourly/forecast10.pdf. It is expected that California entitlement holders will use this information to adjust diversions to remain within approved annual quantities.

Thank you for submitting the District's diversion estimate for 2010. If you have questions, please contact Mr. Paul J. Matuska at 702-293-8164.

Sincerely,

Lorri Gray-Lee
Regional Director

Enclosure

cc: Mr. Gerald Zimmerman
Executive Director
Colorado River Board of California
770 Fairmont Avenue, Suite 100
Glendale, CA 91203-1035

Mr. Herb R. Guenther
Director
Arizona Department of Water Resources
3550 North Central Avenue
Phoenix, AZ 85012-2105

Mr. George M. Caan
Executive Director
Colorado River Commission of Nevada
555 East Washington Avenue, Suite 3100
Las Vegas, NV 89101-1065

Mr. William Hasencamp
Manager, Colorado River Resources
The Metropolitan Water District of Southern California
P.O. Box 54153
Los Angeles, CA 90054-0153

IID Consumptive Use and Diversion Approval Table for Calendar Year 2010

Water Budget Item	Amount[1]
Priority 3 Consumptive Use Cap	3,100,000
Present Perfected Right Holders and Others	(11,500)
1988 IID/MWD Conservation Agreement	(105,000)
IID Transfer to SDCWA	(70,000)
Salinity Management Water	(35,000)
IID Transfer to CVWD	(12,000)
AAC Lining Project Conservation	(67,700)
Drop 2 Construction Water	280
IID Consumptive Use met by LCWSP[3]	(5,280)
Consumptive Use[2]	**2,793,800**
AAC returns[2]	67,000
Approved Diversion[2]	**2,860,800**

[1] All values in acre-feet
[2] Values rounded to the nearest 100 acre-feet
[3] Lower Colorado Water Supply Project (LCWSP) well field

APPENDIX 8

The last IID Annual Implementation Report was completed in 2009. This report has not been produced since due to staffing constraints.

APPENDIX 9

IID Water Conservation Transfer Project Annual Report

In-Valley Permits for Calendar Year 2013

IMPERIAL IRRIGATION DISTRICT

WATER CONSERVATION AND TRANSFER PROJECT

2013 ANNUAL MITIGATION IMPLEMENTATION REPORT

In-Valley Permits

Report Date:	March 2014
Reporting Period:	Calendar Year 2013
Submitted By:	Imperial Irrigation District (IID)
Submitted To:	(1) California Department of Fish and Wildlife (CDFW)
	(2) U.S. Fish and Wildlife Service (USFWS)

1. INTRODUCTION

The IID Water Conservation and Transfer Project (Transfer Project) includes all IID actions and obligations pursuant to the Quantification Settlement Agreement and related agreements executed on October 10, 2003 (collectively, "QSA") and implementation by IID draft Habitat Conservation Plan (HCP). The Transfer Project commenced in Calendar Year 2003. The following key environmental permits and approvals for the Transfer Project relate to resources within the Imperial Valley/Salton Sea area:

- Final EIR/EIS for the Transfer Project, certified by IID as the CEQA Lead Agency in June 2002, as modified and supplemented by the September 2003 Amended and Restated Addendum to the Final EIR/EIS for the Transfer Project, the CEQA Findings and Statement of Overriding Considerations, and the Mitigation, Monitoring and Reporting Program adopted by IID on October 2, 2003 and the Supplement thereto for the Managed Marsh Complex certified by IID on June 24, 2008 (collectively, "**Transfer Project FEIR**").

- Final EIR/EIS for the Transfer Project, prepared by the U.S. Bureau of Reclamation (BOR) as the NEPA Lead Agency and filed with the Environmental Protection Agency in October 2002, as modified and supplemented by an Environmental Evaluation prepared by BOR in October 2003 (collectively, "**Transfer Project FEIS**").

- Biological Opinion on Bureau of Reclamation's Voluntary Fish and Wildlife Conservation Measures and Associated Conservation Agreements with the California Water Agencies (**In-Valley BO**), issued by USFWS to BOR in December 2002, which provides ESA compliance and incidental take authorization within the Imperial Valley/Salton Sea area for the Transfer Project.

- California Endangered Species Act (CESA) Incidental Take Permit No. 2081-2003-024-006 (**In-Valley CESA Permit**) issued by CDFW on October 22, 2004, which provides CESA compliance and incidental take authorization within the Imperial Valley/Salton Sea area for the Transfer Project and Operation and Maintenance (O&M) activities by IID.

As part of the Transfer Project, IID prepared in consultation with USFWS and CDFG, a Draft Habitat Conservation Plan (**Draft HCP**) covering certain activities within the Imperial Valley/Salton Sea area, including the water conservation and transfer activities of IID pursuant to the Transfer Project and IID's O&M activities. The Draft HCP was appended to the Transfer Project FEIR and FEIS, and the conservation measures identified in the Draft HCP were incorporated as mitigation measures for the Transfer Project. The Draft HCP provides for annual reporting of certain information to USFWS and CDFW [Draft HCP, pp. A4-2, A4-4].

The In-Valley BO requires the submittal of reports to USFWS and CDFW by March 31 of each year regarding the previous year's activities, including a summary of the water conservation activities implemented, the volume of water conserved, the acres fallowed for water conservation, the fish and wildlife conservation actions implemented, and the results of any monitoring/survey activities conducted [In-Valley BO, p. 64].

The In-Valley CESA Permit requires the submission of annual reports no later than March 31 of each year, summarizing the previous year's implementation of mitigation measures and assessing the effectiveness of each completed or partially completed mitigation measure in minimizing and compensating for project impacts [In-Valley CESA Permit p. 76].

Pursuant to the Draft HCP and the In-Valley CESA Permit, IID, USFWS and CDFW have established an Implementation Team (IT), which met approximately every 6 weeks during 2013. The IT is responsible for supervising implementation of the conservation/ mitigation measures, including the review and approval of specified reports relating to the establishment of protocols and procedures and compliance and effectiveness monitoring. This Report is not intended to satisfy or supersede reporting to the IT. However, this Report is intended to satisfy the annual reporting requirements of the Draft HCP, the In-Valley BO, and the In-Valley CESA Permit for the calendar year 2013. For ease of reference, the Report references the conservation categories set forth in the Draft HCP. For purposes of the In-Valley CESA Permit, the Annual CESA Permit Mitigation Status Report for Calendar Year 2013, in the specified format, is attached as Appendix 1 to this Report (CESA Report).

2. REPORT

2.1 Colorado River Water: Amounts Diverted and Transferred by IID.

A report summarizing IID's diversion and use of Colorado River water for 2013 is attached to this Report as Appendix 2. BOR provides IID and other users of Colorado River water with annual reports of Colorado River water use, typically in late spring. IID will revise this Report if the final BOR report for 2013 materially changes any of the reported information herein.

2.2 Water Conservation: Amount and Methods.

Appendix 2 also identifies the amounts of water conserved by IID during 2013 pursuant to the Transfer Project and the conservation method(s) used.

2.3 Implementation of Measures for Biological Resources.

2.3.1 Salton Sea Habitat Conservation Strategy [Draft HCP, Salton Sea-1].

The Salton Sea Habitat Conservation Strategy (SSHCS), as described in the Transfer Project FEIR and incorporated into the Draft HCP, requires IID to create conserved water by fallowing and to cause the delivery of that additional water to the Salton Sea on a specified annual schedule. Appendix 2, attached to this

Report (See page15 of 34), identifies the amounts required to be delivered to the Sea and the amounts actually delivered by IID during 2013. [See CESA Report, MM 13 and MM 14]

In 2013 IID delivered approximately 71,477 acre feet of Colorado River water to the Salton Sea. This includes approximately 72 acre feet to make up for an under delivery in 2012. The water use numbers are preliminary and subject to final verification by the U.S. Bureau of Reclamation and IID.

The water surface elevation was approximately –230.7 feet (below mean sea level) January 07, 2013 and approximately -231.39 on December 30, 2013. The elevations are based on IID's datum at Fig Tree John on the Salton Sea.

2.3.2 Tamarisk Scrub and/or Native Tree Habitat Conservation Strategy.

(1) Construction Activities [Draft HCP, Tree Habitat-1 and -3. See CESA Report, MM 21, 24 and 36]. Planned construction projects are listed on the *IID Water Department Construction Resources: Developer/Maintenance & Capital Projects Quarterly Schedule.* This schedule is distributed to the IID Water Transfer Mitigation Team prior to the start of each quarter. Proposed project sites are visited based on the protocol noted below. Additionally, the IID Water Transfer Mitigation Team coordinates with the Water Department Engineering unit on larger scale projects to assure that the water transfer mitigation requirements are incorporated into the project design.

A two-step preconstruction survey protocol is still being used to evaluate potential impacts to Tamarisk (*Tamarix* spp.) and Native Tree Covered Vegetation from HCP covered construction activity. Step 1 is an initial field survey conducted by members of the IID Water Transfer Mitigation Team to evaluate the proposed construction site for Covered Vegetation (Tamarisk Scrub or Native Tree habitat). If Covered Vegetation is identified, the vegetation community composition and areal extent is evaluated. Additionally, if suitable or potentially suitable habitat is identified as part of the initial survey protocol, a determination is made (based on habitat and season) if nesting species surveys are necessary. If such surveys are required, they are conducted by an IID biologist (Step 2). If nesting species are discovered, the project is delayed until after the nesting season or until the nesting species and young have left the nest. Note, that burrowing owl nesting sites are covered under the burrowing owl mitigation measures (See Section 2.3.6).

Step 1 field inspections were conducted on 123 construction sites in 2013. None of those sites were identified as potential habitat for nesting species. [See CESA Report, MM 36].

The amount of impacts to Tamarisk Scrub and Native Tree vegetation (Covered Vegetation) is tallied at the end of each year using the following method. The area of construction disturbance is estimated by identifying the type of

construction (i.e. gate replacement, check structure etc.) and applying an approximate area of disturbance (including access and staging areas) based on the area of disturbance identified in past similar construction activities. The approximate area of disturbance is compared to the amount of vegetation identified to estimate the amount of vegetation that will be impacted by the activity. That impact is quantified and recorded in the IID Pre-Construction Survey database.

Impact to Covered Vegetation caused by accessing the construction site is normally minimal because the construction sites are adjacent to maintained drain and canal roads that have no or minimal vegetation. The amount of impact to Covered Vegetation from staging areas is also minimal because staging is normally confined to existing access roads or the margins of active agricultural fields. In some areas there is vegetation along the upper and mid banks of the canals/drains as well as vegetation within the wetted margins of the channel. Impacted areas greater than 0.1 acres are estimated to the nearest tenth of an acre and are recorded in the above noted database. Areas of disturbance smaller than 0.1 acre are assumed to be 0.1 acre for purposes of aggregating the annual impacts to Covered Vegetation.

Approximately 0.55 acres of Tamarisk Scrub habitat was impacted by construction activity in 2013. No Native Tree habitat was impacted in 2013. The following table summarizes the impacts to Tamarisk Scrub, Native Tree and Seepage Vegetation from 2008 through 2013. See Section 2.3.2 Tamarisk Scrub and/or Native Tree Habitat Conservation Strategy (4) Status of Native Tree Mitigation Area for the status of the created Native Tree habitat and mitigation status.

Vegetation Type	Year						
	2008	2009	2010	2011	2012	2013	Total
Tamarisk Scrub	3	2	0	1.5	4.1	0.55	11.15
Native Tree	0	0	0	0	2.25	0	2.25
Seepage Vegetation	0	0	0	0	0	0	0
Note: Impacts from construction of the seepage recovery systems are included in the tamarisk scrub or drain vegetation categories because the vegetation was located within the drain prism or on the top bank and not in the Seepage Vegetation area.							

(2) Seepage Recovery and Tailwater Return Systems [Draft HCP, Tree Habitat -2 and -3 and CESA Report, MM 29)]. As part of the System Conservation Plan water conservation strategy, the installation of the seepage recovery systems was completed in 2009. No additional sites were constructed in 2013. The following sites contain operating seepage recovery systems:

Dixie Drain 2	Malva 1 Drain	Orita Drain 1
Dixie Drain 4	Malva 2 Drain	Pampas Drain
East Highline 14 Drain	Moss Drain	Township Drain

Holtville Main Drain & Drains 1, 2C, 6 & 7(5 systems)	Mulberry Drain	Verde Drain 2
Magnolia Drain	Malva 1 Drain	Verde Drain 4
Mesquite Lateral Drain	Orita Drain	Warren Drain 2

Minor repairs were required at several of the seepage recovery sites in 2013 because of erosion damaged from heavy precipitation events. Some ruderal vegetation within the drains was impacted by the erosion and subsequent repair activity; but no Covered Vegetation was impacted. The adjacent seepage vegetation has not been impacted by the maintenance activities or by the construction of the seepage recovery sites.

IID continues to monitor native tree/tamarisk scrub vegetation adjacent to the seepage recovery sites. Aerial photograph and groundtruthing of the sites was conducted in spring/early summer, 2013. No evidence of significant stress to the seepage vegetation communities from a reduction in moisture availability (caused by the operation of the seepage recovery pumps) was identified. [See CESA Report, MM 29 and MM 36].

As per the mitigation measures outlined in the permits and authorizations [See CESA Report, MM 57]; IID installs bird strike markers on new electrical lines required for the seepage recovery and tailwater return systems. No new systems were constructed and no existing power line systems were repaired in 2013. Existing marked lines and the surrounding areas are inspected periodically by IID to identify damaged markers and to monitor for bird strikes. There was no avian mortality identified in 2013 that was attributable to a line strike.

(3) Southwestern Willow Flycatcher Habitat. The Bureau of Reclamation (BOR) report *Southwestern Willow Flycatcher Breeding Habitat Evaluation at the Salton Sea* (Olson August, 2008) identified a number of sites that contained potential southwestern willow flycatcher habitat within the HCP covered area. Several of the sites identified, such as the Wister Unit and Finney Ramer, are areas managed by others for wildlife habitat and will not require additional monitoring by IID. The unmanaged sites that require periodic monitoring by IID are:

New River at confluence with Fig Lagoon
New River north bank at Imperial wetland (Rice Drain No. 3)
New River delta
Alamo River delta
Wetland adjacent to New River (Trifolium 12)
Southwest Salton Sea drainage ditch (Trifolium Dr. No.1)
Palm Wash 1&2 from Hwy.111 to Sea (south of Bombay Beach, CA)
Area between Wister Unit and Salton Sea
San Felipe Creek delta

A preliminary plan for monitoring the identified southwestern willow flycatcher potential habitat sites was developed and reviewed by the IT. The New and Alamo river deltas were monitored in 2011 and 2012 and showed no significant vegetation changes. After consultation with CDFW and FWS, minimal clearing on the access road of the New River was conducted in 2013 to facilitate data gathering for the design of the State's Species Conservation Habitat. Additionally high flows in the New River in July/August, 2013 eroded a portion of the berm and access road. After consultation with the IT, the area was repaired. The areas cleared and/or repaired were not considered potential habitat for the flycatcher. No additional monitoring was conducted in 2013. [See CESA Report, MM 41-42.]

(4) Status of Native Tree Habitat Mitigation Area. In 2009, IID developed a plan for creating scrub-shrub habitat as required in the Tamarisk Scrub and Native Tree Habitat Conservation Strategy. The plan was developed as part of the Managed Marsh Mitigation plan and was discussed and approved by the IT at several Managed Marsh design meetings in 2009 (See CESA Report, MM 25). The management plan for the Native Tree habitat is included in the Adaptive Management Plan (AMP) for the Managed Marsh, which was submitted and reviewed by the IT in 2010.

Phase I of the Managed Marsh contains approximately 17 acres of Tamarisk Scrub and Native Tree habitat mitigation that was created at the same time as the Managed Marsh construction. The eastern and westernmost portions of the Managed Marsh contain buffer zones to isolate the habitat from the surrounding area. The west buffer is approximately 2500 feet long (N-S) and 370 feet wide, totaling 20 acres. The east buffer contains a parking area and a staging area and therefore is slightly smaller at 16.5 acres. The Native Tree Habitat encompasses approximately 50% of each buffer, located immediately adjacent to the Managed Marsh cells. The remainder of the buffer zone is used to isolate the Native Tree habitat areas from the roads that border the site.

The habitat consists of honey and screw bean mesquite (*Prosopis glandulosa* and *P. pubescens)* in approximately 17 acres of the two buffer zones. A ground cover of Bermuda grass (Cynodon dactydon) was planted over the entire buffer zone to control dust emissions. Subsequent supplemental planting was done in the western buffer in 2010. The supplemental planting included an altered planting pattern, where the tree were planted in rows (instead of clumps) to facilitate irrigation and loosening of the soil at each planting site. This approach proved very successful and most of the trees in the west buffer exhibited multiple stems with a spreading irregular canopy and were 3 to 6 feet tall in early 2013.

In early 2013 the western buffer was burned by an accidental fire. The fire apparently started on the southern end of the buffer and progressed across most of the buffer area before being extinguished by fire crews.

Southern end of West Buffer immediately after fire
(Photograph credit: Al Kalin)

While the fire moved relatively quickly through the fuel provided by the grass thatch it also heavily damaged approximately 90% of the existing mesquite trees (trees immediately adjacent to the marsh cells and in the extreme north portion of the buffer were not damaged as severely). The buffer area was irrigated shortly after the fire and work crews removed the dead/damaged stems from the site, but did not disturb the root balls of the trees. Approximately 85% of the fire damaged trees have sprouted back from the root ball and are exhibiting vigorous regrowth.

Growth of the trees in the eastern buffer has not been as successful as the western buffer. While the majority of the plantings have survived, the growth has been very slow. The plantings have not developed the multiple stem spreading canopy growth pattern that is normally associated with mesquite shrubs and that was observed in the west buffer. Instead the plants exhibit a single stem that has grown less than 6 inches in any given year (typical rates are in the1-2.5 feet range/year given adequate moisture). IID is currently evaluating the growth issue and has begun the development of a supplemental planting plan for the east buffer that is considering a planting strategy similar to the one in the west buffer and is considering a temporary drip irrigation system.

Mitigation ratios are different for impacts to Tamarisk Scrub and Native Tree habitat and for seepage vegetation areas. They are also different depending on if the mitigation area is created prior to or after the construction activity. The ratios are presented as amount of mitigation required per amount of impact in acres. The ratios are noted below.

Mitigation Ratios for Native Tree Habitat Site

Type of Habitat	Mitigation Created After Impact	Mitigation Created Prior to Impact
Native Tree	3 to 1	3 to 1
Seepage Vegetation	1.5 to 1	0.5 to 1
Tamarisk Scrub	0.75 to 1	0.25 to 1

Consistent with the guidelines in CESA Report - MM 22, IID has been crediting the impacts associated with covered Construction Activities against the 17 acres of created Native Tree habitat. This habitat was created in 2009 and therefore the Mitigation Created Prior to Impact ratio of 0.25 to 1 is used for all years except 2008, which requires the Mitigation Created After impact Ratio of 0.75to 1 for calculating the required mitigation ratio.

The following table summarizes the mitigation requirements by year and includes a tally of the mitigation credits available at the Phase I Managed Marsh site.

Summary of Native Tree Mitigation							
Vegetation Type	**Mitigation Ratio**	**Year**					
		2008	2009	2010	2011	2012	2013
Tamarisk Scrub							
	Impact prior to Mitigation (0.75 to1)	2.25	0	0	0	0	0
	Impact after Mitigation (0.25 to 1)	0	0.5	0	0.4	1.1	0.2
Native Tree							
	Mitigation ratio is (3 to 1)	0	0	0	0	6.8	0
Seepage Vegetation							
	Impact prior to mitigation (1.5 to 1)	0	0	0	0	0	0
	Impact after mitigation (0.5 to 1)	0	0	0	0	0	0
Mitigation Acres Remaining	Based on 17 acres constructed in 2009		14.2	14.2	13.8	5.9	5.7

2.3.3 Drain Habitat Conservation Strategy

(1) Vegetation Survey [Draft HCP, Drain Habitat-1]. IID completed a vegetation survey of the irrigation drainage system in 2005, following the protocol included in the Draft HCP and modified by the IT. The methodology included identifying specific plant species, that were considered "mitigable vegetation" and developing a percent cover for those species. Additionally, the survey identified areas covered with other herbaceous vegetation (annual grasses, Bermuda grass etc.). Cover classes were per the California Native Plant society Cover Class Rankings system. The most common vegetation types identified were tamarisk (*Tamrix* spp.*),* dock *(Rumex* spp.*),* cattails *(Typha* spp.*)* and reed *(Phragmites* spp.). Approximately 11 percent of the drain segments contained mesquite (*Prosopis* spp.) and less than one percent contained willow (*Salix* spp.). No cottonwoods (Populus spp.) were identified within the drain segments. The results of the vegetation survey were used to determine the size and vegetation composition of the Managed Marsh habitat. There are no current plans to conduct additional vegetation surveys. [See CESA Report, MM 45.]

(2) Creation and Management of Managed Marsh Habitat – Phase I [Draft HCP, Drain Habitat-1]. The Managed Marsh complex is located at the English Road site, bounded by Highway 111 on the east and English Road on the west. McDonald Rd (O Lateral) is the southern boundary and Hazard Road (P Lateral) is the boundary to the north. The *Supplement to the IID Water Conservation and Transfer Project EIR/EIS for the Managed Marsh Complex* (June 2008) evaluated a series of locations for the Managed Marsh and identified the English Road site as the preferred alternative.

The English Road site is larger than the required mitigation acreage. Several parcels to the west of English Road were identified as suitable for potential renewable energy. Those parcels were acquired by a local renewable energy developer. As part of the transaction, IID received parcels to the immediate north of Phase I for use in Phase III of the Managed Marsh complex.

Construction of Phase I of the Managed Marsh was completed in October, 2009. Phase I consists of three types of constructed habitat (desert riparian, emergent wetland and scrub-shrub bosque) designed to mimic the habitat types identified in the drain vegetation survey. Phase I is approximately 375 acres; with approximately 325 acres of Marsh habitat (open water and emergent vegetation) and 50 acres on non-emergent habitat (mesic herbaceous and woody vegetation). Portions of the east and west buffer areas of the Managed Marsh complex were planted with mesquite and are designed to mitigate for permanent impacts to Native Tree habitat. [See 2.3.2 Tamarisk Scrub and/or Native Tree Habitat Conservation Strategy and CESA Report, MM 45-47].

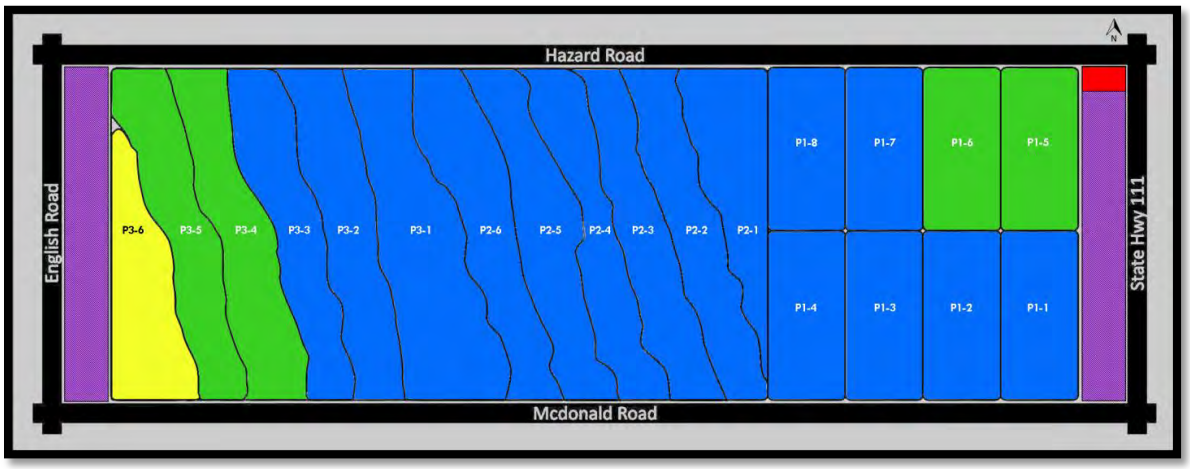
Two basic types of cells were created in Phase I. The 15 acre cells in the P1 field (eastern field) and the larger cells in the P2 and P3 fields. The northern tier of P1 cells receive water from an irrigation gate at the northeastern corner of the

field and water to the southern tier of cells flows from the northern cells. The P1 cells generally slope to the west-southwest with the highest/driest portion of each cell along the north-central portion of the eastern edge of the cell. Water flows across the cell from the northeast corner to the southwest corner.

The P2 and P3 cells are larger (ranging from 25 to 35 acres) and the berms are constructed along one foot topographic contours. These cells have a channel around the perimeter adjacent to the inside of the containment berm that receives water from a regulated inlet along the north boundary of the cell. These cells flood from the west to the east and have a more uniform depth across the north-south axis of the cell. It should be noted that all three fields were fallowed agricultural fields and as such had been land-leveled to slope to the west-southwest for agricultural operations.

Four of the cells, two P1 cells and two P3 cells were constructed with shallow (1-1.5 feet deep) meandering channels excavated in the cell (highlighted in green in graphic). Additionally, the P1 cells have a 2-4 feet deep excavation in the southwest corner of each cell and an L-shaped dispersion channel at the inlet in the northeast corner

Phase I Managed Marsh Cell Design and Vegetation Plan (2009)



Several different vegetation communities were planted/seeded into the cells. The P1 cells were planted with emergent herbaceous species and mesic/xeric species in the dryer portions of the cells. The P1 cells were also seeded with a seed mix of various native emergent species. P2 and P3 cells were also planted with emergent herbaceous species and seeded with the same seed mixture as the P1 cells. Cell P3-6 (highlighted in yellow in graphic) was planted with willow (*Salix* spp.), mesquite and cottonwoods (*Populus fremontii*) to mimic a mesquite bosque floodplain. The channel cells were planted with container size willows, and later supplemented with willow cuttings. Mesquite trees were planted in the drier portions of the P1 cells, in a portion of the last P3 cell and in the two buffer

zones (highlighted in purple in graphic). All of the cells received some level of supplemental planting over the course of the first two years.

In 2012 a vegetation and habitat assessment was conducted on the Phase I cells. The purpose of the evaluation was twofold; to determine vegetation community success and habitat functional values and to inform the development of Phase II. The cells were evaluated for various criteria including vegetation composition, density, and height. The extent of invasive species was also evaluated. The hydric regime (depth of inundation, soil saturation, etc.) was evaluated based on conditions at the time of the field evaluation.

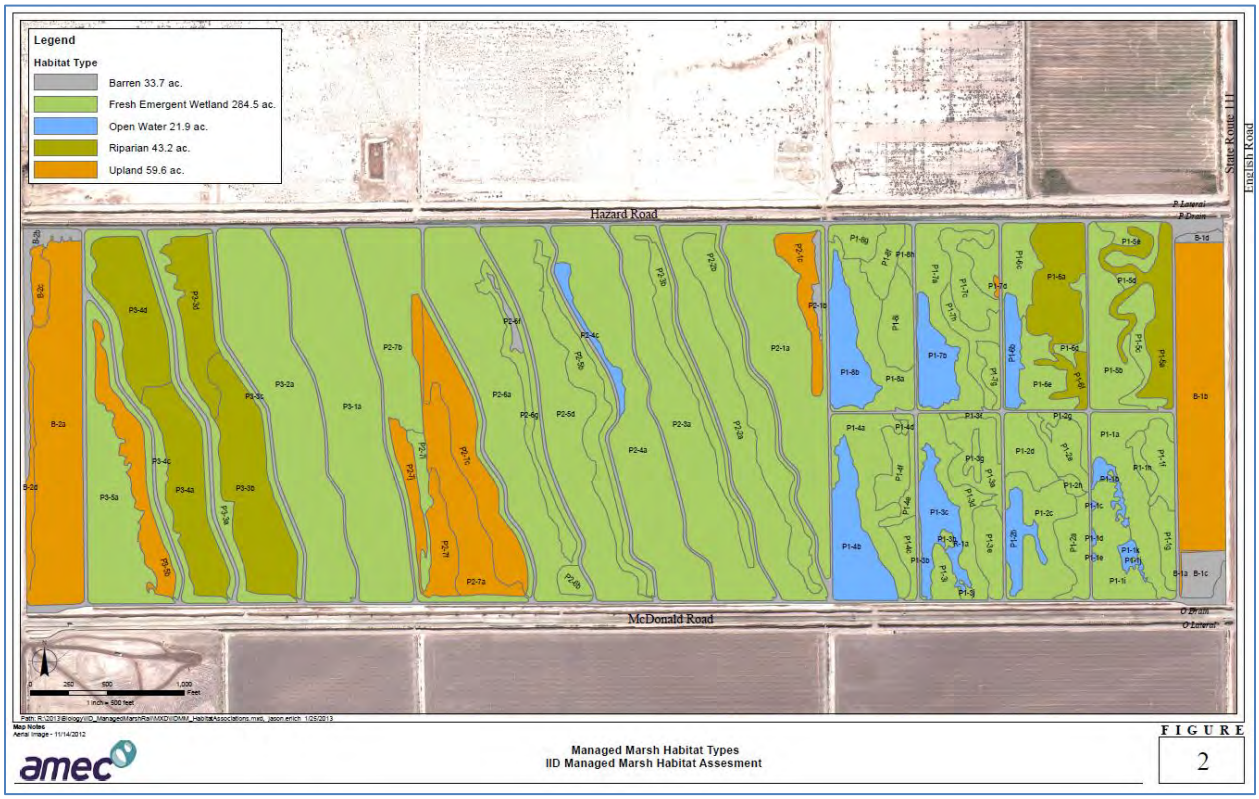
Based on the field evaluation, five habitat types were classified within the Managed Marsh: Barren, Open Water, Upland (saltgrass and mesquite), Riparian (dominated by willow with scattered willow baccharis and mesquite) and Freshwater Emergent Wetland (dominated by cattail with bulrush and other species). Each habitat type was mapped based on 2012 satellite photography (See graphic).

Habitat assessment for target species including California black rail, Yuma clapper rail and Southwestern willow flycatcher were conducted and approximate acreage calculated. The assessment identified approximately 100 acres of medium to high quality habitat for California black rails. Approximately 283 acres of medium to high quality habitat for Yuma clapper rails was identified. About 48 acres of low to medium quality habitat for southwestern willow flycatchers was also identified. None of the species were observed or heard during the site visits.

Habitat Type	Total Acreage
Barren Ground (including roads)	33.7
Open Water	21.9
Upland	59.6
Riparian	43.2
Freshwater Emergent Wetland	285.0

The following graphic locates the habitat types within Phase I of the Managed Marsh.

Phase I Managed Marsh Habitat Assessment (2012)



As required by the CESA permit (See CESA Report MM 47) IID completed an internal draft of the Adaptive Management Plan (AMP) for the monitoring, operation and maintenance of the Managed Marsh in October, 2010. The draft AMP outlines the monitoring and management efforts for infrastructure, water usage, water quality, vegetation, invertebrates and fish, wildlife and vector control in Phase I of the Managed Marsh. The AMP sections describe the regulatory requirements, goals, conceptual models, data quality objectives and specific monitoring and management strategies for each of the various categories previously noted.

IID began implementation of monitoring measures outlined in the AMP in 2011 and continued the implementation in 2013. As revisions to the management and monitoring programs are identified, IID will submit them to the IT for review and approval and incorporate them into the AMP.

The following monitoring and management activities were conducted in 2013.

Wildlife Monitoring: IID continued with the implementation of a monitoring program for wildlife usage of the Managed Marsh that includes field visits to the site to identify avian species. While the surveys concentrate on avian usage of Phase I other wildlife sightings are also recorded. These site visits are conducted

monthly over the course of the year, with more frequent visits during the more active periods (nesting season, spring/fall migration etc.). The visits are normally conducted diurnally early in the morning. The avian observations included visual identification of species, vocalization identification and identification of species sign (tracks, nest, scat, etc.) The data from each observation is recorded in a database maintained by IID. A list of birds identified during the IID monitoring at the Managed Marsh site is included in ***Appendix 4*** of this report.

Many of the vegetation communities (particularly the emergent vegetation) at the marsh have matured with dense stands of vegetation interspersed with isolated open water areas. Wading birds such as great blue heron (*Ardea herodias wardi),* snowy egret (*Egretta thula candidissima),* black-crowned night heron (*Nycticorax nycticorax hoactli*) and great egret (*Ardea alba egretta*) were common visitors in the open water and vegetated fringes of emergent vegetation in 2013. Black-crowned night herons were commonly noted in the P1 cells throughout the year. Occasional visitors also included American white pelicans (*Pelecanus erythrorhynchos*) and California gulls (*Larus californicus*).

Sightings of other fish-eating birds included double-crested cormorants *(Phalacrocorax auritus),* caspian tern *(Hydroprogne caspia)* and forster's tern *(Sterna forsteri)* increased in 2013. These have become regular visitors in larger groups to the P1 cells where open water corners have provided excellent fishing opportunities. Occasionally western grebe (*Aechmophorus occidentalis*) and eared grebe (*Podiceps nigricollis*) were also observed.

The population of water birds continued to increase in 2013. Numerous species were observed; but American coot (*Fulica americana*), common moorhen (Gallinula chloropus cachinnans) and pied-billed grebe (*Podilymbus podiceps*) were the dominant species. Other water birds that were frequently identified included; mallard (*Anas platyrhynchos*), blue-winged teal (*Anas discors*), cinnamon teal (*Anas cyanoptera septentrionalium*), green-winged teal (*Anas crecca carolinensis*), Northern shoveler (*Anas clypeata*), ruddy duck (*Oxyura jamaicensis rubida*) and Northern pintail *(Anas acuta)*. Ruddy duck pairs were observed at the marsh for a majority of the year raising juveniles and numbers have increased from early sightings.

The population and diversity of birds, including some of the more cryptic marsh birds also increased in 2013 with American bittern (*Botaurus lentiginosus*), least bittern (*Ixobrychus exilis*), green heron *(Butorides virescens)* and common moorhen (*Gallinula chloropus cachinnans)* identified during the monthly IID avian surveys. Several sightings and vocalizations of Yuma clapper rail (*Rallus longirostris yumanensis) and* Virginia rail *(Rallus limicola)* were also noted in 2013. Several other marsh birds were noted by others at the marsh, including the bird below, tentatively identified as a sora (*Porzana Carolina*)

Sora at Marsh - December 2013
(Photograph credit: Al Kalin)

Passerine birds identified at the marsh in 2013 included loggerhead shrike (*Lanius ludovicianus*), marsh wren (*Cistothorus palustris aestuarinus*), red-winged blackbird (*Agelaius phoeniceus sonoriensis*), yellow-headed blackbird (*Xanthocephalus xanthocephalus*), Western meadowlark (*Sturnella neglecta*), black phoebe (*Sayornis nigricans semiatra*) and yellow-rumped warbler *(Setophaga coronate)*. Unique passerine observations included a Western tanager (*Piranga ludoviciana*) in April, northern rough-winged swallow (*Stelgidopteryx serripennis*) in July and northern flicker (*Colaptes auratus*) in October. Several inactive passerine nests have been observed at the marsh, but no active nesting was identified in 2013.

The migratory/transient raptor population has also increased. While there were no identified instances of nesting raptors at the site in 2013, the number of sightings of raptors foraging at the marsh increased. While Northern harriers (*Circus cyaneus hudonius*) were the most commonly observed raptor, other regular raptor sightings included, white-tailed kite (*Elanus leucurus majusculus*), red shouldered hawk (*Buteo lineatus elegans*), red-tailed hawk (*Buteo jamaicensis*), American kestrel (*Falco sparverius*) and peregrine falcon (*Falco peregrines anatum*). Pellets from a barn owl (*Tyto alba*) and great-horned owl (*Bubo virginianus*) were also observed on several occasions at the marsh. Ancillary sightings of both barn owl and great-horned were reported in 2013. The increase in raptor activity may be in response to the establishment of small mammal habitat in several of the cells and in both buffer areas.

Sightings of small mammals were also recorded during the numerous management and monitoring visits to the site. Coyote (*Canis latrans*) and feral dogs continue to be sighted in various areas of the marsh and tracks were noted throughout the site. A bobcat *(Lynx rufus)* was noted on numerous occasions

from March to June foraging within the marsh cells. Unfortunately the bobcat was struck and killed on Highway 111 in 2013. Desert cottontail (*Sylvilagus audubons*) have been identified in the western buffer area and scattered around the drier portions of several wetland cells. Rodent tracks and evidence of burrowing activity has been noted in several areas of the marsh and skunk and raccoon tracks have been noted in the mesic portions of the P3 cells. Muskrat (*Ondarta zibethicus*) have been sighted in the flooded portions and burrows have been identified in many of the cell berms. [See Invasive Species section below].

Bobcat at Managed Marsh June 2013
(Photograph credit Al Kalin)

Numerous sightings of reptiles and amphibians have also been recorded. Western diamond-back rattlesnake (*Crotalus atrox*) and red racer/coachwhip (*Masticphhis piceus)* have been noted throughout the year. Most of the snake sightings were along the edges of the aquatic areas or in the buffer zones. The marsh also has a robust population of American bullfrogs *(Rana catesbeiana)* which were noted throughout the aquatic areas.

The east and west buffer zones continue to provide habitat for small mammals and various passerine birds have been noted in these areas. Additionally raptors have been noted foraging in the buffer areas, particularly the western buffer. See Section 2.3.2 Tamarisk Scrub and/or Native Tree Habitat Conservation Area (4) Status of Native Tree Habitat Mitigation Area for details of the management of the marsh buffer areas.

A single Yuma clapper rail mortality was identified in December 2013 adjacent to the Managed Marsh west buffer zone. The mortality was reported to CDFW and USFWS.

Operation and Maintenance: The water flow and depth in each cell is controlled by manipulating the cell's inlet and outlet structures. Water depth in the cell is primarily controlled by adjusting the height of the boards in the outlet weirs. If more or less flow through is required, the inlet vales are adjusted until the desired amount of water is discharging over the top of the weir boards. On occasion, the boards in the outlet weir are removed to allow a pulse of water through the cell to flush the cell or to mitigate for various water quality issues.

In 2013, IID continued the use of cascading method of irrigation water delivery. Using the cascading method, water is introduced into the northern tier P1 cells from irrigation gate P-18. The water flows through the northern cells and discharges to the cells in the southern tier of cells and to the adjacent cell to the west via the regulated outlets along the western end of the cells. This same process is followed for the P2 and P3 cells with supplemental irrigation water added to the system via irrigation gates P20 and P22. IID implements a quarterly field monitoring of water parameters (pH, salinity, dissolved oxygen, total dissolved solids) and annual sampling and analysis of water, sediment and tissue to evaluate concentrations of selenium in the cells (See following section for results of the monitoring program).

The original design of the marsh envisioned isolated flow through cells with water entering the north end and being discharged from the south end of each cell with little to no mixing across the cells. The design also included a collector drain along the southern edge of the cells to capture/collect discharge from the individual cells for possible reuse in the downstream cells. With the implementation of the cascading water delivery system discharge from individual cells was minimized and the collector drain system was no longer necessary. Additionally, the drains close proximity to the IID irrigation drain caused concerns relating to bank failure and soil slumping into the IID drain. In 2013, after the nesting season was complete, IID installed direct discharges from the cells to the IID drain and eliminated the collector drain system.

Damage to berms and access roads from burrowing animals continues to be a significant problem. Berm repairs were required in numerous cells in 2013 to repair damage caused by muskrats. Many burrows were collapsed without repairs to the access roads. Importing of fill material and additional grading will be required to repair the access roads.

In 2013, IID began the development of an Integrated Pest Management program for the control of muskrats. The program includes an active harassment program that includes the collapsing of burrows and tunnels as they are discovered. Several methods of trapping (both terrestrial and floating traps) were evaluated with limited success. The animals rapidly developed awareness of the trap and after some initial success, the traps were avoided. Chemical controls such as acute toxics and anticoagulants were considered but eliminated because of

concerns of primary and secondary exposure to the chemicals. Additionally many of the rodenticides are not approved for use by the State of California for use on muskrats.

Field trials of fumigation (carbon monoxide) were initiated in 2013 using a Cheetah MD1100 device (see photograph below). Exhaust gasses from the two cycle engine are compressed and directed into a flexible exhaust tube which is placed in the burrow opening. The initial field tests were inconclusive. Many burrows had multiple openings which vented the gas and reduced the concentration. Additionally, it proved difficult to positively identify mortality given the extent of the burrow systems. Trials will continue.

Cheetah DM 1100 Field Trials at Managed Marsh (July 2013)

Control of tamarisk infestation is the most significant invasive species issue at the complex. IID continues with a variety of methods in an attempt to control growth of tamarisk. An active spraying program is employed as one of the primary measures for control. Where it is not practical to use herbicide applications (primarily in areas that contain desirable vegetation interspersed with tamarisk), mechanical removal is employed.

IID began the development of an IMP for vegetation control in 2013 and will develop a series of best management practices for control of invasive species. The development of the BMPs includes the development of a guide that outlines the most efficient methods of chemical control, the limitations/restrictions of those chemicals, and the required application procedures. Only non-restricted chemicals are used, all applicators are properly trained and the application process is per the guideline and requirements of Imperial County Agricultural

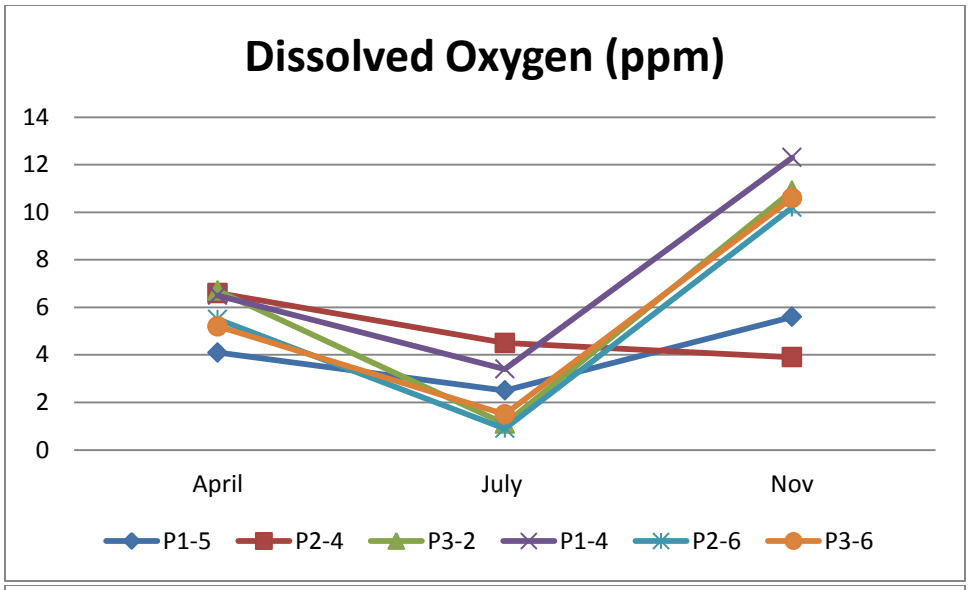
Commissioner's pesticide use permit. No herbicide application is conducted in areas with nesting species.

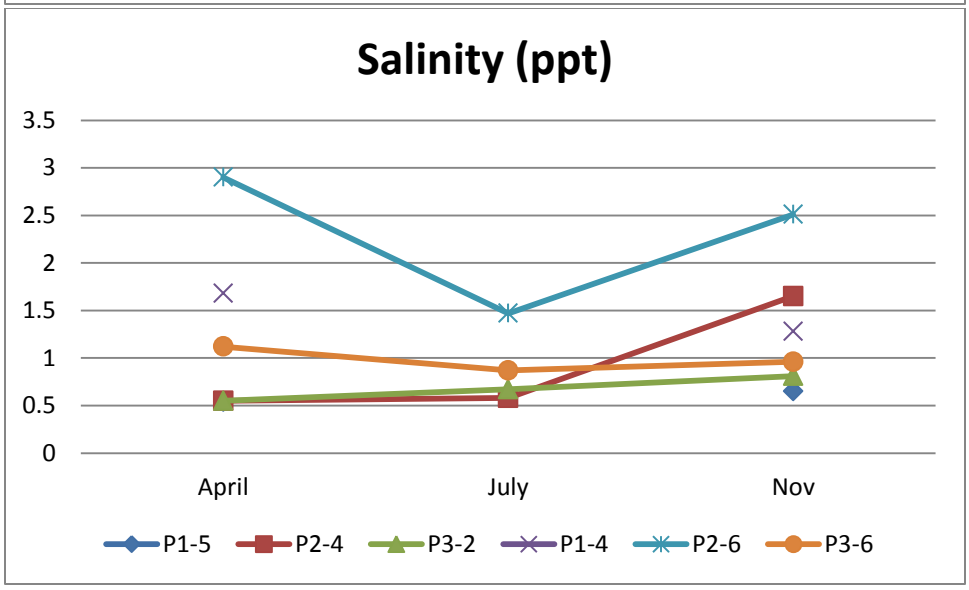
Monthly management reports of activities at the Managed Marsh are included in ***Appendix 5***.

Water/Tissue Monitoring: In 2013, IID monitored general water quality parameters at 3 inlet and 3 outlet stations throughout Phase 1 of the Managed Marsh. Water quality was measured using an YSI multi-parameter Handheld Meter. Parameters include dissolved oxygen, calculated salinity (based on conductivity) and pH. The sampling locations are noted on the following graphic.

Water Quality Sampling Locations (2013)

Sampling results are illustrated on the following graphs:





Normally water, sediment and tissue samples are taken in July of each year and analyzed for selenium concentrations and other water constituents. However, in 2013 no annual sampling was conducted because of an ongoing analysis of the monitoring protocol. The 2012 annual sampling and analysis identified several concerns related to slightly elevated selenium concentrations in the samples taken in the P1-4 cell. After discovering the elevated concentrations, IID initiated a review of the managed Marsh sampling program for 2011 and 2012. CH2MHILL's selenium expert conducted an evaluation of the program and its results that included a field visit to the marsh, a preliminary review and comparison of the analytical results and an evaluation of the sampling/analysis protocol.

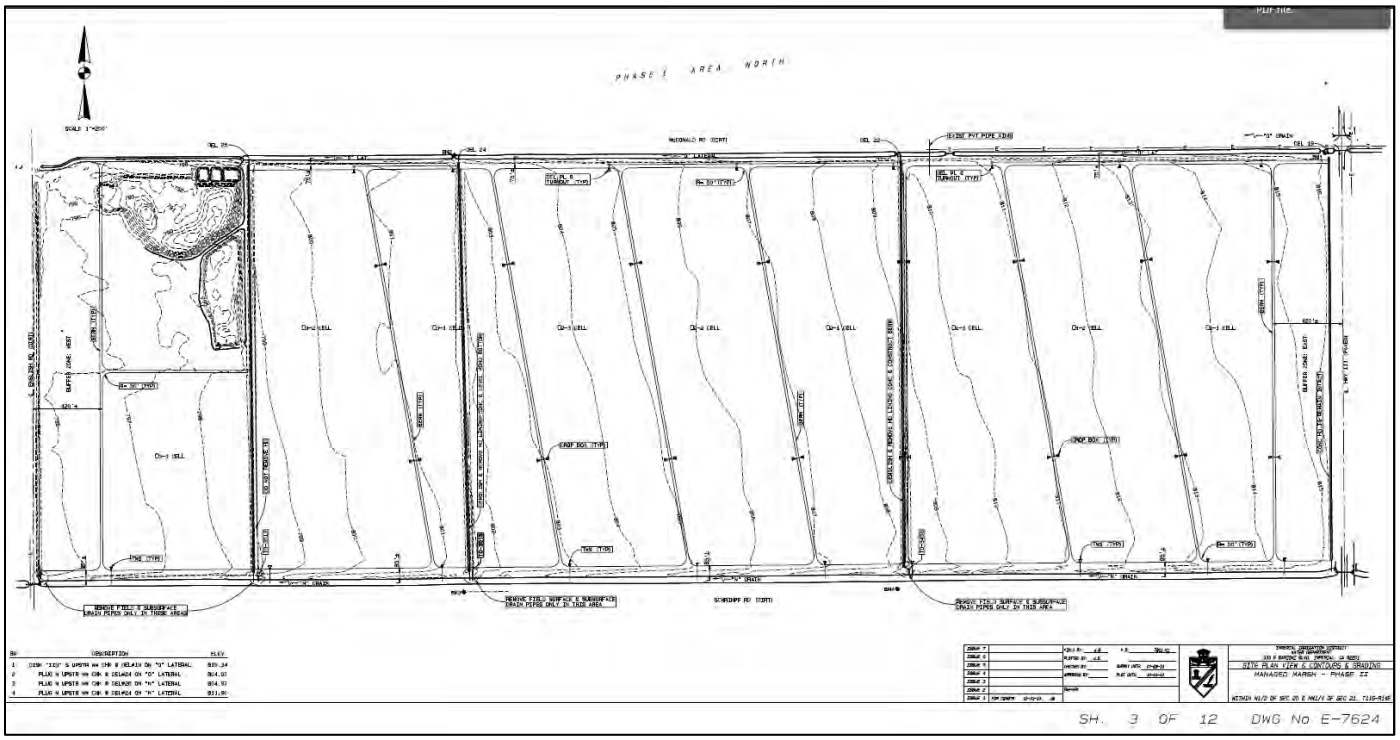
CH2MHILL full report, *Analysis of Water, Sediment, and Biota Data Collection in 2011 and 2012 from the Managed Marsh Complex, Imperial Irrigation District* is included in ***Appendix 6***. Based on their recommendation, IID will conduct quarterly lab analysis of water samples for selenium concentrations, include more replicates of samples, develop alternative crayfish capture techniques and potentially team with USFWS to obtain a Scientific Collection Permit for bird egg analysis. The existing AMP will be revised to reflect the revised water quality monitoring program and IID will implement the program in 2014.

(3) Design of Managed Marsh – Phase II Preliminary design of Phase II was started in early 2013 with the selection of the location of Phase II. Phase II will be located directly to the south of Phase I, between the 'O' Lateral to the North and 'N' Drain to the south (outlined in purple in graphic). McDonald Road is the northern boundary and Schrimpf Road is the southern boundary; as with Phase I the eastern boundary is Highway 111 and the western boundary is English Road. Phase II will be constructed in the three fields immediately north of Phase I.

Proposed Location of Three Phases of Managed Marsh Complex

The *Draft and Final Supplemental to the IID Water Conservation and Transfer Project EIR/EIS* (January and June 2008) noted several variants of cell designs that might be included in the development of the three phases of the Managed Marsh. Phase I of the Marsh incorporated several of those concept designs including full cell emergent marsh, variable depth emergent marsh cells and multiple channel cells. Phase II will use some of the same designs and will include additional cell designs.

The preliminary design was submitted to the IT for comment in November, 2013 (see below)



Preliminary Design Phase II of Managed Marsh

Phase II incorporates many of the basic design concepts of Phase I and adds some refinements to the design. As in Phase I the general layout includes a series of impoundments (cells) generally aligned along a north-south axis, with buffer zones on the east and west ends. The irrigation delivery system is similar to Phase I with a delivery pipe that includes individual gates for each cell. The cells will also be designed to accommodate the cascading water delivery system used in Phase I and the individual discharge weirs to the O Drain.

The Phase II preliminary design also incorporates a number of changes from the Phase I design, based on experience with the construction and operation of Phase I.

- Cells will be offset from the N Drain to more easily accommodate drain maintenance.
- Cell berms will be located at approximately two foot topographic contours (as opposed to one foot in Phase I).
- Cell berm tops will be wider and berm slopes will be flatter than Phase I

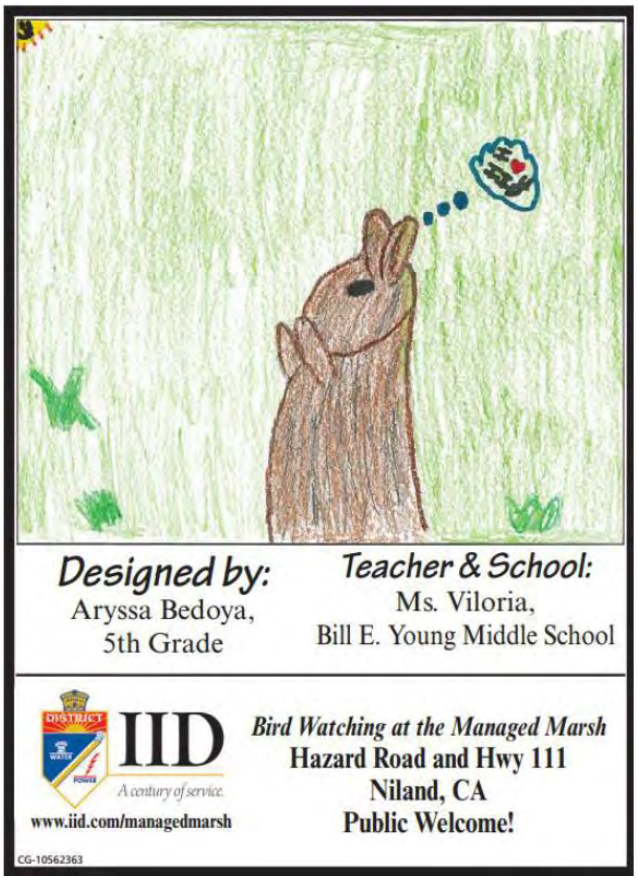
- Cell floors will be leveled with a center channel to facilitate draining of the cell. This will facilitate more accurate management of water depths across the cell.

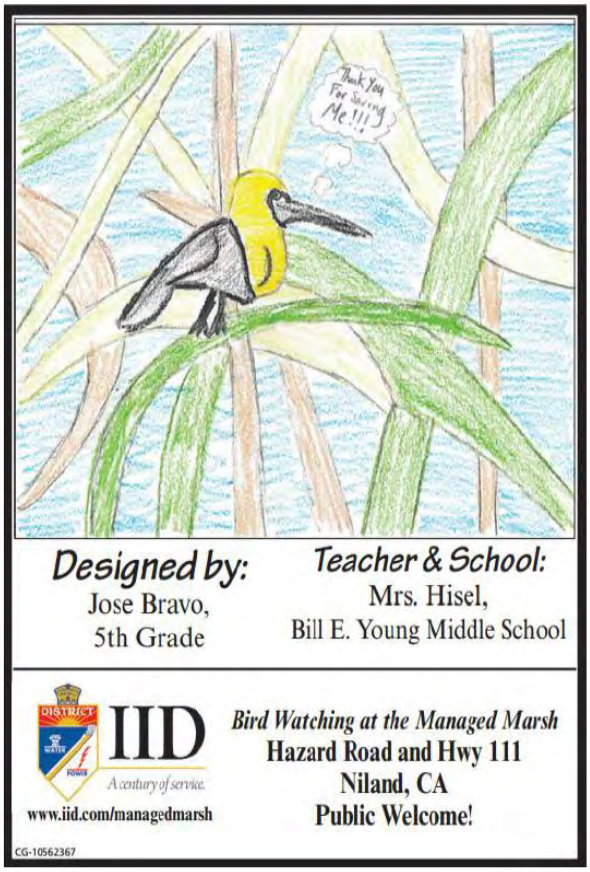
- Woody species will be incorporated on islands instead of along channels to reduce wind throw and to provide for easier maintenance of cells.

IID also began the vegetation planting and seeding plan for Phase II of the Managed Marsh in 2013. It will also incorporate various changes based on experiences in the completion of Phase I.

(4) Public Outreach. As part of the public outreach and education component of the water transfer mitigation program, IID participated in a Design An Ad program with the Imperial Valley Press. The IV Press program included several visits to the classrooms by the IID team members to present an overview of the water transfer mitigation program (specifically the Managed Marsh). After the presentations the calluses design advertisement for publication in the Imperial Valley Press newspaper. IID met with two fifth grade classes from Bill E. Young Middle School in Calipatria, CA and covered the Managed Marsh, wildlife and plants that are found there. The classroom portion also included an explanation of the HCP Implementation Team and discussed the importance of conservation of wildlife species. From the two classes IID received numerous potential advertisements, five of which were published in the local newspaper. IID also conducted a follow up visit to the classrooms after the advertisements were published to discuss the results with the classes.

Two of the advertisements for “Bird Watching at the Managed Marsh”:





(5) Dredging [Drain Habitat-2]. No dredging activity was conducted in 2013. After consultation with the IT, IID repaired storm damage along the New River berm and removed vegetation along the access road to allow access for field work related to the design of Species Conservation Habitat (See CESA Report MM 41 and 49)

(6) Additional Habitat Replacement/Creation/Monitoring [Drain Habitat-1]. IID continued to qualitatively monitor the habitat at the McKendry Pond site as part of the restoration of existing habitat impacted by IID maintenance activities (See *Imperial Irrigation District Water Conservation and Transfer Project Annual Report In-Valley Permits – Calendar Year 2011*). The vegetation at the site is primarily common reed, cattails and tamarisk. The reed and cattails appear to be dominating the shallower portions of the pond and are continuing to advance into the central open water portion of the site. Tamarisk continues to encroach along the margins of the pond

IID created pupfish habitat below the weir structure to offset the loss in McKendry Pond itself. Approximately 100 feet of channel was excavated from the existing drainage channel northwest to the Salton Sea. The channel, approximately 20

feet wide with a relatively flat bottom, was designed to mimic the existing channel (known pupfish habitat). Vegetation (primarily cattail and tamarisk) have established in portions of the channel and along the upper banks. Desert pupfish were noted in the channel in 2012 (California Department of Fish and Wildlife). [See 2.3.7 Desert pupfish Conservation Strategy (3) Drain Maintenance Measures and Monitoring].

2.3.4 Construction Surveys [Drain Habitat-3].

IID conducted a field evaluation of each proposed construction site prior to initiation of construction activity. The two-step evaluation protocol previously described [See 2.3.2 Tamarisk Scrub and/or Native Tree Habitat Conservation Strategy, (1) Construction Activities] was used in the evaluation. If potentially suitable habitat is identified in the initial site visit, the site is identified for further evaluation and species surveys (if needed) by the IID environmental specialists and/or biologists.

No potential nesting habitat was identified at the 123 sites inspected in 2013. [See CESA Report, MM 21, MM 36 and MM 50-52.]

Section 2.3.5 - Burrowing Owl Mitigation Measures (2) Drain Cleaning and Construction Measures lists the activities for burrowing owl burrow avoidance and mitigation measures.

2.3.5 Desert Habitat Conservation Strategy.

Worker Education Program [Draft HCP, Desert Habitat-1]. IID's operation, construction and maintenance (O&M) workers can be assigned to any project within the Service Area depending on the specific construction, maintenance or operational need at any given point. Thus, the workers can be conducting O&M activities in any of the HCP habitat types and/or Covered Species habitats (Desert Habitat, Drain Habitat, burrowing owl. etc.). Based on that, and input from the O& M workers and supervisors, IID combined the various aspects of the desert habitat education program, the burrowing owl training program with other mitigation measure requirements (such as nesting birds). IID presents a single training program that includes all applicable aspects of the mitigation program. The training session also includes instruction on other mitigation measures such as avoidance measures for nesting covered species and for drains considered to contain potential desert pupfish habitat.

In 2013, IID conducted worker education classes for all of the construction, maintenance and zanjero employees conducting Covered Activities. New or transferred employees were trained as needed during 2013. The HCP training requirements were incorporated in the IID Worker Training program in 2013 and classes are included in the required training schedule distributed to all workers.

No burrowing owl mortality from operation and maintenance activity was reported in 2013 [See CESA Report MM 11]. It should be noted that while no owl carcasses were encountered during the inspection of emergency repair areas, given the extent of damage, it is difficult to determine if mortality of burrowing owls (or other Covered Species) occurred.

In 2012 IID also began coordination with the various renewable energy project sites to assure that both IID's required mitigation and the construction site specific mitigation was implemented in a coordinated manner to reduce impacts to the species. [See CESA Report, MM 59].

(1) O&M Activities - Worker Practices [Draft HCP, Desert Habitat-2]. Instruction has been included in the O&M worker education program detailing the current mitigation measures for O&M activities that might affect desert habitat and/or other Covered Species. In each of the training classes, the HCP Implementation Staff includes a worker feedback opportunity, so the O&M workers can offer suggestions for improving the implementation of the mitigation measures.

As noted in the previous section, the mitigation training program was revised to include more aspects of the overall program (instead of separate training for each habitat type) per input from the O&M team. [See CESA Report, MM 60 and MM 61].

(2) Construction Activities - Worker Practices [Draft HCP, Desert Habitat-3]. The worker education program includes the measures specified in the Draft HCP in connection with scheduled construction and maintenance activities affecting desert habitat. In 2013 construction activities included the emergency repairs of flood damaged facilities. Although most of the damage was limited to the agricultural potions of the Service Area, some repairs to the access road on the east side of the East Highline Canal were also necessary. As noted previously IID crews receive annual training in all aspects of the mitigation requirements of the water transfer, including measures for desert areas. No mortality to desert Covered Species was reported in 2013 [See CESA Report MM11]

IID continues to evaluate the mitigation measures to determine their effectiveness; to this point, no modifications to the avoidance and minimization measures for desert habitat Covered Species have been identified [See CESA Report, MM 61- 63].

(3) Baseline Covered Species and Vegetation Survey [Draft HCP, Desert Habitat-4]. A vegetation survey of the desert areas within or adjacent to the rights-of-way of the AAC, East Highline, Westside Main, Thistle and Trifolium Extension was completed in 2005 and a final report and GIS database were delivered to the IT in 2006.

The field effort for the third and final year of baseline Covered Species surveys was completed in December, 2009. The final database analysis and statistical evaluation was completed in 2012.

In March 2013, IID met with AMEC Environmental about Baseline Survey data and how to best incorporate the data into the IID Geographic Information System. IID also began evaluating methods to provide periodic updates to the Covered Species and Vegetation surveys.

(4) Replacement Habitat [Draft HCP, Desert Habitat-5]. No Desert Habitat was impacted by IID Covered Activities in 2013.

2.3.6 Burrowing Owl Mitigation Measures

(1) Worker Education Program [Draft HCP, Owl-1 and Owl -3] As noted in Section 2.3.5 Desert Habitat Conservation Strategy (1) Worker Education Program, IID combined the habitat-based training programs into one training program in 2011. IID environmental specialists and biologists conducted a series of training sessions for the O&M workers on burrowing owl burrow avoidance measures and other required mitigation measures in 2013.

(2) Drain Cleaning and Construction Measures [Draft HCP, Owl-2 to -6]. Inspections prior to construction activities and scheduled maintenance activities were conducted in accordance with the Burrowing Owl Inspection Protocol. Three environmental specialists and the IID biologist are trained in the protocol for burrowing owl burrow inspection and avoidance. Additional IID employees members have been trained in the implementation of the protocol and are available as needed to provide additional burrowing owl burrow surveys.

For purposes of marking burrows for maintenance activities, the Service Area is divided into two general areas (Northend and Southend) with one of the environmental specialists being the primary person responsible for burrow marking in each of the areas, although each environmental specialist can mark burrows in any of the areas. The environmental specialist and/or biologists use the daily location, maintenance and canal cutout schedules to identify and inspect drain/canal sections prior to maintenance activity. The Canal Cut Out schedule is also utilized to identify larger segments of the irrigation system that may be undergoing maintenance.

Much of the inspection and marking for specific maintenance activities is done at least one to two weeks in advance of the activity. This allows for identification of areas where activities will need to be delayed due to proximity of active burrowing owl burrows, the collapsing of unoccupied burrows and/or the identification of other nesting Covered Species. When a facility is identified on the cutout schedule, the entire unit (main canal segment and corresponding laterals) is inspected and burrows are marked. This inspection is normally done one to three weeks in advance of the scheduled activities. The Environmental

Specialist coordinates with the site foreman and/or supervisor if any segment needs to be avoided.

Construction activities are monitored based upon the quarterly Capitol Projects schedule and these projects are normally inspected approximately one month prior to the activity. The HCP staff also attends the preliminary IID design team meetings to inform the IID design team of any potential issues, identified during the preliminary site visit that might impact the design or scheduling of the project. One person is normally responsible for monitoring the construction sites, although others fill in as necessary. A database of inspected drains and marked potential owl burrows is maintained by IID. Approximately 1,072 maintenance inspections occurred during 2013 with 3,926 potential burrowing owl burrows marked prior to O&M activity. Of those, 1,695 burrows were known to be occupied burrows. Approximately 123 constructions sites were evaluated in 2013 for presence of burrowing owl and other covered species and vegetation.

Emergency repairs occurred in late August and September following a flood event affecting the area northeast of Brawley with some damage along main canals on the east side of the valley. To the extent practical, the flood damaged areas were checked immediately following the flood event and all areas that had undergone flood repairs and/or maintenance were surveyed after the repair activities had been completed. Those areas surveyed prior to the initiation of emergency repairs exhibited areas of collapsed drains or canal banks. In several areas burrowing owls were observed in these damaged areas and no burrows were visible. In other areas active burrows appeared to be intact and still occupied. Below is a brief breakdown of the 2013 storm damage impacts along IID rights-of-way.

	Drainage System	**Canal System**
Number of Conveyances	55 drains	30 canals or laterals
Displaced Burrowing Owls	20 burrowing owls	3 burrowing owls
Damaged Burrows	19 burrows	0 burrows
Burrows collapsed for Repairs	0 burrows	7 burrows
Covered Vegetation Impact	Minimal	None

(3) Relative Abundance and Distribution Survey [Draft HCP, Owl-7]. The final report for the BUOW census effort; Burrowing Owl Population Size in Imperial Valley California: Survey and Sampling Methodologies for Estimation (Bloom Biological - 2009), was submitted and accepted by the IT in 2009. The report details the methodology and results of the burrowing owl population census within IID rights-of-way in the Imperial Valley. Using protocols developed in the pilot study (Bloom Biological -2006), the Service Area was divided into 274 survey grids (See graphic on page 22). After completing a three replicate survey of all of the grids, a BUOW population size for 2007 (4,879 male territories) and 2008 (3,557 male owl territories) was determined.

Using data from the Bloom Biological report and input from leading BUOW researchers, the IT/IID developed a modified BUOW "mark-recapture" protocol for use in developing a two-staged population estimation model to determine BUOW population within IID rights-of-way. The population estimation model stratified all 274 survey grids into low, medium and high densities (based on the Bloom Biological data). Based on previous statistical analysis and input from the IT; 55 grids were established as the size of the survey effort. The 55 grids (19 low density, 21 medium density and 15 high density) were selected using a GPS spatially balanced random selection program based on a predetermined percentage of each density class.

Field surveys were conducted in Spring 2011 and again in Spring 2012. The field surveys were conducted by two person teams (primary observer and secondary observer/driver). All IID canal and drain rights-of-way within each grid were surveyed. Two replicate surveys were conducted on each grid on different days and with different observers (with a few exceptions).

Comparison of BUOW Population Estimates To 2007-2008 BUOW Census	
Survey Method/Year	**Owl Locations (95% CI)**
AECOM Surveys	
2012 Two-Stage Population Estimation Model	
Single Observer	3,611 – 4,655
Primary/Secondary Observer	3,295 – 4,258
2011 Two-Stage Population Estimation Model	
Single Observer	4,450 – 5,666
Primary/Secondary Observer	4,019 – 5,158
Bloom Biological Surveys	
2008 Census Results (Bloom Biological)	3,370 – 3,743
2007 Census Results (Bloom Biological)	4,692 – 5,065

No BUOW population estimate surveys were done in 2013. In late 2013 the IT and the Water Transfer NCCP Science Advisory Committee met to discuss various aspects of the BUOW monitoring, management and mitigation program.

(4) Replacement Owl Burrows [Draft HCP, Owl-8]. The IT reviewed and accepted the *Imperial Irrigation District - Burrowing Owl Artificial Burrow Installation Manual (*Barrett Biological, 2009). No burrowing owl burrows were permanently removed (as defined by the IT) in 2013 and therefore no artificial burrows were required in 2013.

(5) Farmer and Public Education Program [Draft HCP, Owl-9].
In 2013, the Implementation Staff gave presentations regarding the water transfer mitigation plan, including the burrowing owl program, to the following organizations or groups:

Water Conservation Advisory Board	Elementary/High School Classes	Imperial County Board of Supervisors
Colorado River Tour	MWD	SDCWA
Open session IID Board meetings	Water Education Federation	IV Farm Bureau
American Society of Civil Engineers	World Environmental & Water Resource Congress conference	Wildlife Society Annual Conference - Western Section

IID became a committee member of the Burrowing Owl Stewardship and Education Fund through the Imperial Valley Community Foundation. This fund is financed by solar developers and logistically supported by Sierra Club, Defenders of Wildlife, private project developers and consulting firms. The fund is advised by a six-person committee with one Board seat and an alternate seat taken by IID Implementation Team members.

In February 2013, IID, Imperial County and the Imperial Valley Community Foundation presented a Burrowing Owl Workshop introducing the Burrowing Owl Stewardship and Education Fund. The forum was attended by over 200 guests and discussed burrowing owl conservation, including updates on recent conservation, monitoring and discussions about impacts related to renewable energy development and mitigation measures. Presentations featured the different research, agency, agricultural landowner, biologist and county development perspectives. The workshop ended with a panel of the speakers discussing the potential for an Imperial Valley burrowing owl conservation plan. In conjunction with the Fund's monetary gifts to Imperial Valley conservation and stewardship projects, the IID hopes to create synergistic collaboration with partners to advance the work, research and understanding of burrowing owls in our territory.

In addition to the new partnership with Burrowing Owl Stewardship and Education Fund projects, the Implementation Team has also started monitoring impacts to burrows and owls along IID rights-of-way in private solar development areas. Development projects that have begun construction and those planned in the north end were visited in late 2013. Project details including the stage of the project and characteristics were recorded. All burrows and owls along IID rights-of-way within and along the development project's footprint were recorded with the burrow GPS location. These sites will be visited periodically to monitor development and changes.

2.3.7 Desert Pupfish Conservation Strategy

(1) Refugium [Draft HCP, Salton Sea-2]. The refugium is located at the IID Fish hatchery complex north of Villa Road in El Centro, California. The facility, completed in December, 2010, consists of two small ponds connected by a shallow channel. The channel includes a control structure that will allow either pond to be isolated for maintenance or to capture fish. The ponds are lined with a clay substrate that is covered with pea gravel. Each pond has a separate regulated inlet and outlet and can be operated separately if necessary.

In late 2011, an Asian tapeworm infestation was identified in the IID grass carp grow-out facility. While it has not been positively established, it is likely that the vector for the infestation was Colorado River water. After consultation with the IID Biological Control Unit, Bureau of Reclamation - Lower Colorado River fishery team and the IT, it was determined that implementation of the refugium should be delayed until additional data on the Asian tapeworm issue could be gathered and evaluated. [See CESA Report, MM 82]. In 2013 CDFW continued with the development of a study to evaluate the potential for Asian tapeworm infestation in areas surrounding the Salton Sea.

(2) Selenium Study Program. The USGS Columbia Environmental Research Center (CERC) completed the laboratory bioassay work investigating the toxicological effects of bio-accumulated selenium in desert pupfish in 2010. [See CESA Report, MM 84].

The four-year quarterly sampling study to characterize physiochemical conditions in 29 agricultural drains flowing directly into the Salton Sea was completed in 2009 by the USGS Western Fisheries Center and completed the report*; Final Report: Baseline Selenium Monitoring of Agricultural Drains Operated by the Imperial Irrigation District in the Salton Sea Basin* (USGS-Open File Report 2010-1064*)* in 2010. The surrogate species study was also completed in 2010 and identified sailfin mollies as a suitable surrogate for approximating selenium concentrations in desert pupfish [See CESA Report MM 84]. These reports are available on the IID web page.

The following table summarizes results of 2003 to 2013 desert pupfish trapping at the Salton Sea by USGS, IID and CDFW [See CESA Report, MM 86 and MM 87].

Drains	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
Niland 1			x	0	0		x	S			
Niland 2			0	0	0						
Niland 3			0	0	0		x				
Niland 4			0	0	0				0	0	
O	0	x	x	x	0	x	x	S/x			
P			0	0	0			S		x	0
Poe	x	x	x	x	0	x	x	S/0		x	
Pumice[1]			0	x	x		x	0		x	0
Q			0	0	0		x	S			0
R			0	0				S			
S			0	0	0			S			
San Felipe Wash			x	0	0		x		x		
T			0	x	0		x	S			
Trifolium 1			0	0	0			0		x	
Trifolium 12			0	0	0						
Trifolium 13			x	x	x		x				
Trifolium 14A	0	0	x	0	x	x	x	x		x	
Trifolium 18			x	x	x		x				
Trifolium 19			0	0	0						0
Trifolium 20			0	x	0		x		x		
Trifolium 20A[2]	0	x	x	0	x	x	x	0		x	
Trifolium 22			x	x	0		x		0	0	
Trifolium 23			0	x	0		x		x	0	
Trifolium Storm							x				
U	x	x	0	x	0	0	x	S/0			
Vail 5[3]	x	x	x	x	0	0	x	S/x		x	
Vail 6[4]	x	x	x	x	x	x	x	x		x	
Vail Cutoff											
W			0	0	0		x	S		x	
Z Spill	x	x	x	x	0	0	x	S		x	

[1] USGS sampling Pumice Pond at the mouth of Pumice Drain
[2] Synonymous with 'former Trifolium 20' drain of others
[3] USGS sampling McKendry Pond at the mouth of Vail 5 drain
[4] USGS is sampling Lack and Lindsey Pond at the mouth of Vail 6 lateral

X: Effort 1+ pupfish
0: Effort No pupfish
S: Stocked

(3) Drain Operation and Maintenance Measures and Monitoring [Draft HCP, Pupfish-4, 5 and 6]. As part of the mitigation requirements included in the SWRCB permit for the water transfer, IID completed a study to evaluate the toxicology and movement of selenium within IID's service area and to correlate land use and irrigation practices to the transport and fate of selenium. IID completed the study, *Practices that Result in Selenium Discharges in the Imperial Valley of California* in December, 2011.

In 2013 IID continued to evaluate measures to reduce potential impacts to desert pupfish during maintenance activities. IID continues to trap potential desert pupfish drains prior to maintenance activity. No desert pupfish were identified in 2013. IID, along with the IT and the NCCP Science Advisory Committee, also began the evaluation of alternative desert pupfish habitat mitigation measures.

2.3.8 Razorback Sucker Conservation Strategy

1) Salvage Procedure. [Draft HCP, Razorback Sucker-1]. A relocation protocol for salvaged razorback suckers was approved in 2005. No razorback sucker relocation was required in 2013. [See CESA Report, MM 99]

2.3.9 Agricultural Field Habitat Conservation Strategy

(1) Agricultural Production Statistics: Appendix 3, attached to this Report, contains the statistics on agricultural production in the Imperial Valley from 2009 through 2013, including total acreages in production, acres of each crop grown, acres fallowed, and acres participating in the conservation program. Appendix 2 indicates the amounts of water conserved and transferred.

(2) Cover Crops. [Draft HCP, Agriculture-2]. On fallowed lands owned by IID, residual crops were left on the land to control dust emissions and provide foraging opportunities for Covered Species. Selected fallowed fields were enrolled in an upland game bird habitat program managed by a local wildlife management group. [See CESA Report, MM 56.]

(3) Farmer Owned Fallowed Fields [Final EIR/EIS, June 2002]. IID's fallowing program requires the land owner/lessee to provide adequate dust emission control on fallowed fields. IID conducts an inspection program that monitors the fallowed fields to assure that dust emissions from the fallowed fields are minimized.

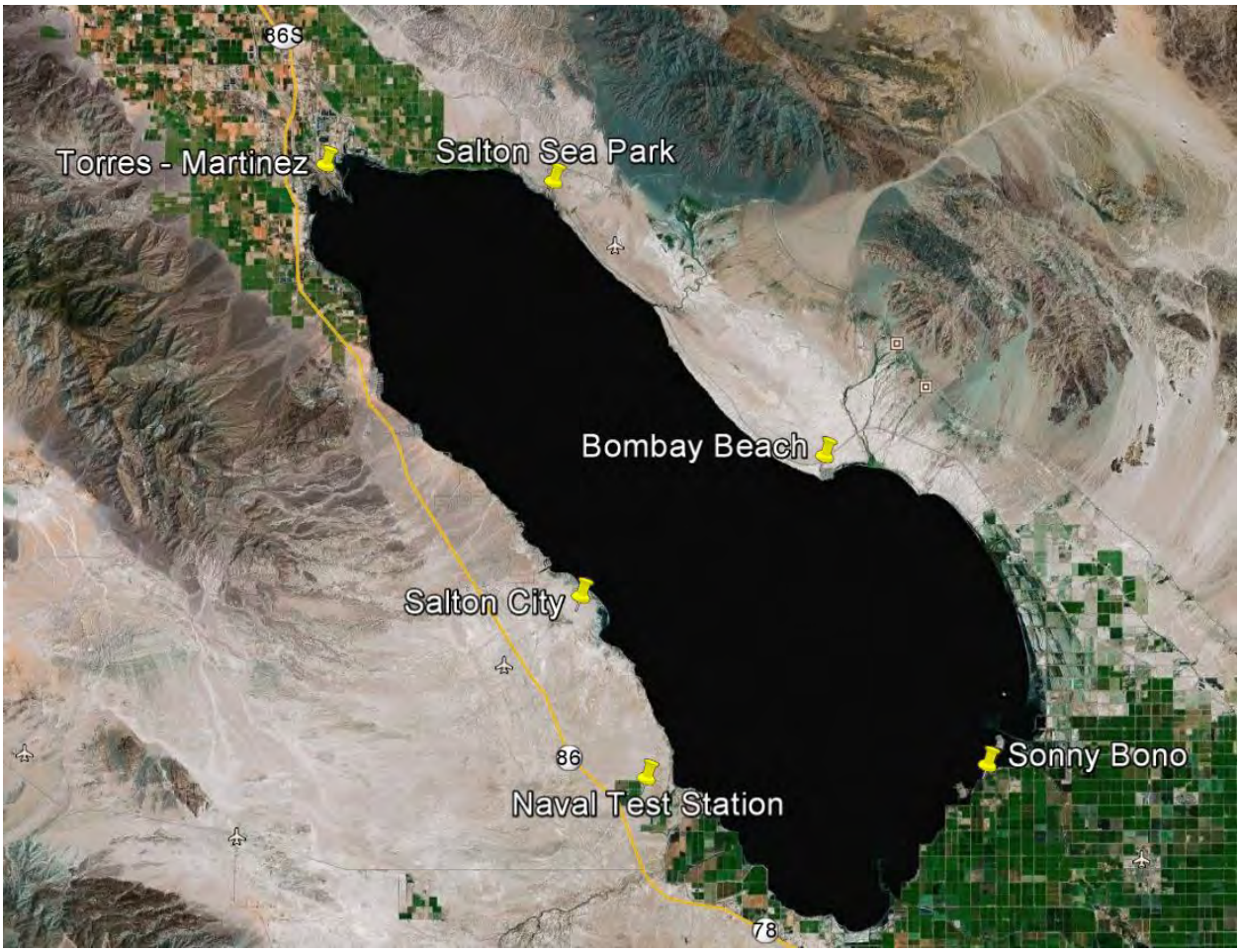
2.4 Air Quality

In April 2013, IID completed a draft air quality mitigation program. *The Air Quality Mitigation Program for the Imperial Irrigation District Water Conservation and Transfer Project (*IID 2013*)* outlines IID's air quality monitoring program, the

playa emissivity analysis, the ongoing dust control pilot project evaluation and the plan for implementation of dust control measures.

Operation of Salton Sea Regional Monitoring System: As per the mitigation program, IID continued the operation, maintenance and data management responsibility for the six air quality monitoring stations in the Salton Sea Regional Monitoring System. In 2013, IID assumed temporary responsibility for operation and maintenance of Torres-Martinez station.

The approximate location of the stations is noted on the graphic.



Location of Six Station Salton Sea Regional Monitoring Network

Each station records a suite of meteorological information including: horizontal and vertical wind speed temperature, humidity and net radiation. Each station is also equipped with a dicot tapered element oscillating microbalance (TEOM) which provides simultaneous real-time measurements of particulate matter including $PM_{2.5}$ and PM_{coarse} and calculates PM_{10}. This information is reported to the California Air Resources Board to be posted on the Air Quality and

Meteorological Information System, which is a web-based source for real-time (and historical) air quality and meteorological data.

In 2013 IID met with South Coast Air Quality Management District (AQMD) and Torres-Martinez to coordinate the installation of Hydrogen Sulfide Monitoring equipment at the Torres-Martinez Wetlands air quality monitoring station. South Coast AQMD will be responsible for compiling and managing of the data.

Hydrogen Sulfide intake (left photograph) and sampling, calibration and data logger added by South Coast AQMD at Torres-Martinez Station

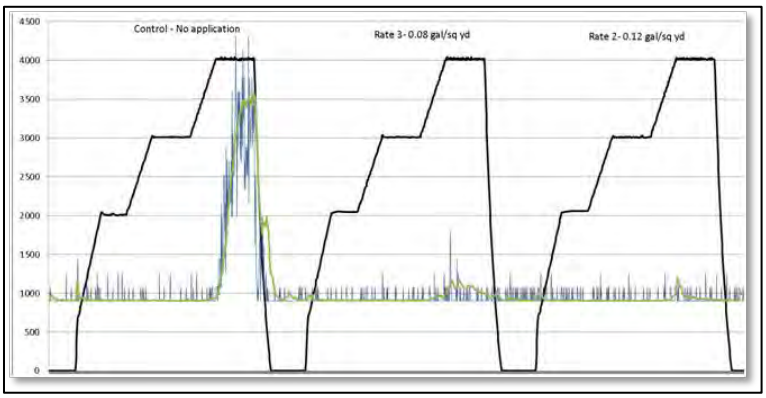
Operation and maintenance of the stations include cleaning, auditing and testing of meteorological tower gear and TEOM equipment. Monthly maintenance is also accompanied by additional procedures in bi-monthly, quarterly, semi-annually and annual intervals to ensure equipment is in working order for maximum data capture. IID HCP staff members participated in supplemental training with American Ecotech in 2013 to integrate the new data software (Airodis) into the analysis process and to implement a revised annual maintenance schedule for the stations. The revised annual maintenance program will also include an evaluation of preventative maintenance operations that may improve system reliability.

IID also continued coordination with the State Air Resources Board, NewFields and others to determine applications for the meteorological and particulate matter data collected by the air monitoring stations. The air station data will be combined with data from other existing stations to develop a more detailed understanding of wind dispersion patterns in the valley and how they might affect dust emissions on the playa.

Playa Topographic and Emissivity Data. Using the topographic data from LIDAR and sonar data gathered by USGS and data from the Salton Sea Hydrology Model, a playa exposure model was completed in 2013. This model provides an estimate of playa exposure by year and will inform the strategic placement of air quality mitigation measures.

In 2013, an In-Situ Wind Erosion Laboratory (PI-SWERL) was purchased for use in an expanded playa surface testing program outlined in the air quality mitigation program. The emissivity testing is conducted at the locations noted below. A GIS located transect has been established at each location. At each transect, the previously evaluated locations are evaluated again to determine if the emissivity characteristics of that portion of the playa have changed based on the length of time the site has been exposed. Additionally newly exposed playa at each transect is evaluated.

PISWERL Site Locations



Example of data that is collected by the PI-SWERL and a photo of PI-SWERL in use.

In January 2013, IID participated in Off Highway Vehicle Monitoring Experiment with Formation Environmental by driving an ATV on exposed playa around the New and Alamo Rivers. Astrium GEO-Information Services and Intergraph Inc. along with Formation Environmental used Synthetic Aperture Radar and optical imagery to test whether Coherence Change Detection techniques can be used to quantify OHV traffic. The final report for this experiment will be released in 2014.

Pilot Projects and Alternative Land Use. IID continues to qualitatively monitor volunteer vegetation at several areas around the Salton Sea. The New River Playa Wetting Project was discontinued in 2013 to allow for planning for the development of the Species Conservation Habitat project.

IID also began development of a Salton Sea Restoration and Renewable Energy Initiative in 2013 that will develop renewable energy (primarily geothermal) on exposed playa around the lake,

List of Appendices

1. Annual Mitigation Report pursuant to In-Valley CESA Permit
2. Colorado River Water and Salton Sea Mitigation Water Accounting
3. Agricultural Production Statistics
4. Managed Marsh Avian Species 2013
5. Monthly Operation Reports - Managed Marsh
6. Analysis of Water, Sediment, and Biota Data Collection in 2011 and 2012 from the Managed Marsh Complex, Imperial Irrigation Districts – Managed Marsh 2013

APPENDIX 1

Annual Mitigation Report pursuant to In-Valley CESA Permit

Imperial Irrigation District ("IID")
ANNUAL CESA PERMIT MITIGATION STATUS REPORT

IID Water Conservation and Transfer Project

Report Date: March, 2014
Reporting Period: Calendar Year 2013

In compliance with:
California Endangered Species Act - Incidental Take Permit No. 2081-2003-024-006 (CDFG November 2004)

Supplements: Annual Report: In Valley Permits for Calendar Year 2013, submitted by IID to U.S. Fish and Wildlife Service ("USFWS") and California Department of Fish and Wildlife ("CDFW"), dated March 31 2014 ("Annual Report")

	Mitigation Measure	Source	Implementation Schedule	Responsible Party	Status / Date
1	Permittee shall immediately notify the Department in writing if it determines that it is not in compliance with any condition of approval of this Permit, including but not limited to any actual or anticipated failure to implement mitigation measures within the time periods indicated in the Permit or this table.	Permit	During Permit term	IID	No action in 2013.
2	Beginning with issuance of the Permit and continuing for the life of the project, Permittee shall provide the Department an annual Status Report no later than March 31st of every year. Each Status Report shall include, at a minimum: 1) a copy of this table with notes showing the current implementation status of each mitigation measure; and 2) an assessment of the effectiveness of each completed or partially completed mitigation measure in minimizing and compensating for project impacts.	Permit	During Permit term	IID	Annual Reports have been submitted to agencies by 31 March of each year
3	No later than 120 days after completion of the project, including completion of all mitigation measures, Permittee shall provide the Department with a Final Mitigation Report. The Final Mitigation Report shall be prepared by a knowledgeable, experienced Biologist and shall include, at a minimum: 1) a copy of this table with notes showing when each of the mitigation measures was implemented; 2) a summary of available information about Project-related incidental take of Covered Species; 3) information about other project impacts on the Covered Species; 4) construction dates; 5) an assessment of the effectiveness of Permit's conditions of approval in minimizing and compensating for project impacts on Covered Species; 6) recommendations on how mitigation measures might be changed to more effectively minimize and mitigate the impacts of future projects on the species; and 7) any other pertinent information, including the level of take of Covered Species associated with the Project. IID may incorporate by reference the information from any annual or other report provided to the Department in satisfaction of this Condition. Within 90 days of the receipt of the Final Mitigation Report, the Department shall determine whether or not to accept the Final Mitigation Report as complete, which acceptance shall not be unreasonably upheld. In the event that the Department does not approve the Final Mitigation Report, it shall suggest specific changes to the Final Mitigation Report which would cause the Department to accept the Final Mitigation Report.	Permit	Post-project	IID	No action required in 2013.
4	The agencies accept the Final Mitigation Report as complete.	Permit	Post-project	Agencies	Wildlife agency action
5	The agencies may, at their sole discretion, verify compliance with any mitigation measure or independently assess the effectiveness of any mitigation measure.	MMRP	During Permit term	Agencies	Wildlife agency action
6	Permittee shall fully cooperate with the Department in its efforts to verify compliance with or effectiveness of mitigation measures.	Permit	Until acceptance of Final Mitigation Report	IID	IID has cooperated with CDFG to verify compliance
7	Within 1 year of issuance of the Permit, Permittee will appoint a full-time equivalent biologist/project manager (Implementation Biologist) to manage the proper implementation of the Permit. Responsibilities will include ensuring adequate staffing and resources. Prior to securing a full-time equivalent biologist/project manager, IID's existing environmental compliance staff will ensure compliance with the Permit	Permit	By November 2005	IID	IID has a full-time IT Biologist. Three additional team members are also part of the IID Implementation Team.

	Mitigation Measure	Source	Implementation Schedule	Responsible Party	Status / Date
	requirements.				
8	Within 3 months of issuance of the Permit, Permittee will convene an Implementation Team (IT) consisting of representatives from IID, the Fish and Wildlife Service (Service), and California Department of Fish and Game (Department).	Permit	February 2005	IID and Agencies	The IT, met numerous times during 2013. The IT was also updated on a regular basis via email and telephone conversations.
9	By December 31, 2006, Permittee shall develop and implement, in cooperation with federal and state agencies, an adaptive management process for monitoring the effectiveness of, and adjusting as necessary, the measures to minimize and fully mitigate the impacts of the authorized take on the species for which take is authorized by the Permit. Until such time as the adaptive management process is developed the Permittee will implement the monitoring program provided in Attachment 2. This adaptive management process does not need to substantially contribute to the conservation of the species (see Fish & G. Code § 2081.7(d) (3).).	Permit	By 31 December 2006	IID and Agencies	Adaptive Management strategies are included in survey protocols and study plans currently being implemented. Pursuant to the cited Code section, preparation of the adaptive management program is the responsibility of CDFG.
10	Subject to the appropriation of funds as described in Section 2081.7 (d)(3) of the Fish and Game Code, the Department, in cooperation with state and federal agencies shall develop and implement an adaptive management process that substantially contributes to the long-term conservation of the species for which take is authorized. Subject to the appropriation of funds, preparation of the adaptive management program and implementation of the program is the responsibility of the Department. Additional procedures and measures may be necessary to meet this standard. Subject to the appropriation of funds, preparation of this additional adaptive management program and implementation of the program is the responsibility of the Department, but does not modify Permittee's responsibilities under Condition of Approval 4(a) (iii) to develop and implement an adaptive management process.	Permit	TBD	Department of Fish and Game	Wildlife agency action.
11	IID will notify the Department within three working days if a Covered Species is found dead or injured and the death or injury is reasonably attributable to a covered activity. A written notification will be made within five calendar days and will include the date, time, and location of the discovered animal/carcass, the expected cause of injury or death and any other pertinent information. Except in the case of a large die-off, injured animals will be transported to a veterinarian or certified wildlife care facility and the Department informed of the final disposition of any surviving animal(s). Except in the case of a large die-off, all dead specimen(s)/carcass (as) shall be submitted to educational/research institutions possessing the appropriate state and federal permits. If deposition to an institution is not possible, the carcass will be marked, photographed, and left in the field.	Permit	During Permit term, within 3 days of covered species mortality/injury event.	IID	IID notified the IT of Covered Species mortality in 2013. No educational or research institution was identified that would take the carcasses.
12	Under emergency situations, Permittee will implement the following procedures: • IID will notify the Implementation Biologist immediately. • IID will notify the Department and Service within 24 hours of initiating emergency activities. In notifying the Department and Service, the Permittee will describe the nature of the emergency and the actions necessary to correct the problem. • Where multiple actions need to be taken, the Implementation Biologist will work with repair	Permit	During Permit term, following emergency situation.	IID	Large storm events in August and September 2013 caused widespread damage to the irrigation infrastructure in the valley. The IT was notified of the events within the specified timeframe and a final report was prepared and presented to the IT after all repairs were completed. The summary of the repairs is included as an appendix to

	Mitigation Measure	Source	Implementation Schedule	Responsible Party	Status / Date
	crews to prioritize repairs based on the risk to Covered Species and habitats for Covered Species provided under the Permit and threats to human health and safety and property. • The Implementation Biologist will visit sites where emergency activities are being implemented as soon as possible. The biologist will take pictures of the damaged areas and note the general extent and species composition of any vegetation impacted by the emergency response activities. IID will use this information to restore or create replacement habitat in accordance with Condition of Approval 4(f)(i), 4(g)(i), 4(i)(vi), and 4(j)(iv). • Within one month of completing emergency actions, Permittee will meet with the Department and Service to review the measures Permittee will implement to mitigate any impacts resulting from the emergency actions. • Following agreement with the Department and Service regarding appropriate mitigation, Permittee will prepare a Post Incident Report for submittal to these agencies. This report will document: –the nature of the emergency –the actions taken to address the emergency –the impacts to Covered Species and/or their habitats (e.g., area of drain habitat impacted) –the mitigation measures to be implemented to address the impacts –monitoring and reporting requirements (if any) for the mitigation measures To facilitate effective and appropriate responses to emergencies, the IT may refine and further specify these general procedures to address specific types of emergencies that could arise.				the 2013 Annual Report. IID presented the report on the emergency repairs and discuss mitigation measures. The IT and IID are reviewing emergency repair protocols to better define emergency repairs.
13	Between 2003 and 2017, IID shall deliver water to the Salton Sea in accordance with the schedule and amounts of mitigation water shown in Table 1-3, "Revised QSA Delivery Schedule by Conservation Method", from the Amended and Restated Addendum to Environmental Impact Report/Environmental Impact Statement (EIR/EIS) for the IID Water Conservation and Transfer Project, September 2003 (see Attachment 5).	CESA Permit SWRCB Permit	2003-2017	IID	IID is delivering water to the Salton Sea. See Appendix to Annual Report – Salton Sea Mitigation Accounting.
14	Implementation of Condition of Approval 4(c)(i) requires supplying water to augment inflows to the Salton Sea. IID will submit annual reports to CDFG, USFWS and SWRCB showing the total amount of water supplied to the Salton Sea for the preceding year, with an explanation of how the amount delivered was calculated.	CESA Permit, SWRCB Permit	2003-2017	IID	Report is included as Appendix to Annual Report.
15	Permittee will construct at least two roost sites for brown pelicans along the Southern California Coast. Permittee shall provide at least 2 major roost sites that in combination accommodate 2000 brown pelicans and support at least 1200 brown pelicans. A major roost site is defined as supporting at least 100 pelicans during June through October based on maximum counts. The roost sites are to be installed by the end of 2018 and will be maintained by Permittee or another entity approved by the Department through 2048. The two required roosts will be located in South San Diego Bay and in the	CESA Permit	Installed by 31 December 2018; Maintained through 2048		No mitigation action was required in 2013. IID began the process to remove the brown pelican from the list of Covered Species in 2013, based on its federal delisting

	Mitigation Measure	Source	Implementation Schedule	Responsible Party	Status / Date
	outer harbor of Santa Barbara unless future investigations determine installation of roost sites at these locations to be infeasible. A barge or similar structure will be anchored to create a roost site in the outer harbor in Santa Barbara. The second roost site will be created in South San Diego Bay by installing one or more structures suitable for roosting pelicans and appropriate to the site-specific conditions in the bay (this may include barges if suitable).				
16	Permittee, or other entity approved by the Department, will monitor the roost sites annually for use by brown pelicans beginning one year after their installation. Monitoring will consist of day and night roost surveys during June through October. Monitoring will be used to determine 1) if the created structures are serving as a major roost (i.e., more than 100 pelicans) and 2) if they are major roosts, if in combination they are supporting at least 1200 pelicans. Based on the five years of monitoring, a roost site will be considered a major roost if the maximum number observed was at least 100 pelicans during 3 out of 5 years. Similarly, if the two roost sites in combination support at least 1200 pelicans during any of the 5 years based on maximum counts, the conservation measure will be considered successful. If the monitoring shows that a roost site does not support at least 100 pelicans in 3 of 5 years, Permittee will work with the Department and Service to modify the roost site to achieve the target number of pelicans, or if modifications to the roost site are not likely to achieve the objective, to identify one or more locations to establish additional roost sites as necessary to establish two major roosts. Similarly, if the two roosts in combination do not support at least 1200 pelicans, the Permittee will work with the Department and Service to modify the roost sites or establish additional roost sites until at least two major roosts are established and all created major roosts combined support at least 1200 pelicans. Attachment 4 summarizes information on locations along the Southern and Central California Coast where roost sites could be created or improved in the event that the initial two roosts do not achieve the objectives.	CESA Permit	2018-2022	IID	See MM 15.
17	Permittee, or other entity approved by the Department, will continue to monitor the roost sites annually after the initial five year effectiveness monitoring period. The Permittee will work with the Department and Service to develop an appropriate level of intensity for the monitoring. During the Permit duration, the frequency for the monitoring may be reduced with approval from the Department and Service. If the monitoring data show a decline in use of a roost site by Brown Pelicans to a level below the target population (i.e., 1200 pelicans) and the decline in use can be reasonably attributed to the characteristics or management of the roost site, then the Permittee will work with the Department and Service to identify and implement actions to re-establish conditions to support 1200 pelicans.	Permit	2023-2049	IID	See MM15.
18	Permittee, or other entity approved by the Department, shall provide for the creation of roost structures for brown pelicans that are anticipated to continue to forage on the limited remaining fish at the river and drain mouths to offset the loss of existing roosts when the Salton Sea elevation drops below -235 feet. It may be possible to modify existing structures (e.g., Mullet Island or its surroundings) to	Permit	Start “when sea elevation drops below –235 feet”	IID	See MM 15.

	Mitigation Measure	Source	Implementation Schedule	Responsible Party	Status / Date
	preclude predator access to achieve this goal. The structures shall meet with the approval of the Service and Department and shall provide for a minimum of 25 pelicans.				
19	Permittee, or other entity approved by the Department, shall schedule regular maintenance of the created pelican roosts during the month of December to minimize disturbance of migrating pelicans and the resident population that could result in harm through a lack of access to dry sites where the birds can roost and maintain their plumage. Exceptions to this scheduling shall be approved by the Service and Department.	Permit	2019-2049	IID	See MM 15.
20	If California least terns begin nesting at the Salton Sea during the term of the Permit, Permittee will use fencing or other approved techniques to protect tern nesting areas from predatory terrestrial animals.	Permit	During Permit term, following evidence of California least tern nesting at SS.	IID	No evidence of nesting terns was noted in 2013; therefore, no action required.
21	For scheduled construction activities (except for the installation of subsurface seepage recovery systems – see Condition of Approval 4(f)(ii)), the Permittee will survey the site before initiation of construction activities. If tamarisk scrub habitat occurs on the project site and would be affected by the construction activities or operation of the constructed facilities, the acreage and plant species composition of the affected vegetation will be determined.	Permit	During Permit term, prior to Construction Activity	IID	IID biologists and/or environmental specialists visited each proposed construction site and evaluated the site for suitable vegetation. In 2013 123 sites were evaluated and approximately 0.55 acres of tamarisk scrub was impacted. See 2.3.2 - Tamarisk Scrub Habitat Conservation Strategy (1) – Construction Activities
22	For tamarisk that would be permanently lost, Permittee will create or acquire native tree habitat consisting of mesquite bosque or cottonwood-willow habitat. The amount of habitat to acquire or create will be calculated based on the following ratios: • If the Permittee creates habitat prior to conducting the construction activities, the mitigation ratio for the acreage of created habitat to lost acreage of tamarisk will be 0.25:1 as long as the created habitat meets the success criteria. • If the Permittee creates habitat after conducting the construction activities or if IID acquires existing habitat, the mitigation ratio for the acreage of the created or acquired habitat to lost acreage of tamarisk will be 0.75:1. The habitat will be created or acquired within 1 year of initiation of the construction activities unless otherwise agreed to by the Permittee, Service, and Department.	Permit	During Permit term, prior to or after scheduled construction activity.	IID	Approximately 17 acres of native tree habitat were created in the Managed Marsh buffer zones in 2009 See Section 2.3.2 Tamarisk Scrub and Native Tree Habitat Conservation Habitat (4) Status of Native Tree Habitat Area See Item # 29 for impacts to tamarisk scrub vegetation from seepage recovery systems.
23	If the Permittee elects to acquire habitat, the Permittee will work with the IT to identify a property for acquisition. Habitat to be acquired must support mesquite bosque of types III or IV or cottonwood-willow habitat of types II, III, or IV (Ohmart and Anderson 1984), occur within the Salton Sea Basin and meet with the approval of the Department and Service. If the only available properties that meet these requirements are larger than required to compensate for the lost acreage, IID may acquire the least expensive property. IID can use the additional acreage of the acquired habitat to fulfill the mitigation obligations of Condition of Approval 4(f)(i), ii, and iv). IID will place a conservation easement on acquired lands and provide for the property to be managed for	Permit	During Permit term, prior to or after scheduled construction activity.	IID	As noted above, native tree mitigation was created in the Managed Marsh complex buffer zones No habitat areas were acquired in 2013.

	Mitigation Measure	Source	Implementation Schedule	Responsible Party	Status / Date
	Covered Species in perpetuity. With the approval of the Department and Service, IID may transfer the land to a third party who agrees to and is authorized to manage the land for habitat conservation purposes. If IID transfers the land to a third party, IID will establish an endowment fund adequate to provide for the management of the lands in perpetuity.				
24	For native tree habitat that would be removed by construction activities, the Permittee will create or acquire native tree habitat consisting of mesquite bosque or cottonwood-willow habitat at a 3:1 ratio for the acreage impacted. The habitat will be created or acquired within 1 year of initiation of the construction activities unless otherwise agreed to by the Permittee, Service, and Department.	Permit	During Permit term, prior to or after scheduled construction activity.	IID	IID biologists and/or environmental specialists conducted inspections of scheduled construction activities in 2013. No impacts to Native Tree habitat was identified in 2013. Section 2.3.2 Tamarisk Scrub and Native Tree Habitat Conservation Habitat (4) Status of Native Tree Habitat Area for a mitigation acreage summary
25	If IID elects to create habitat, IID will work with the IT to develop a habitat creation plan. The habitat creation plan will include the following information: • Location • Planting plan (including species composition and layout) • Grading and other construction activities • Long-term management practices • Vegetation and species use monitoring • Success criteria for the plantings and the actions that IID will take if the success criteria are not met IID will submit habitat creation plans to the Department and Service for approval prior to initiation of habitat creation activities. IID will provide for the management of created native tree habitat in perpetuity.	Permit	During Permit term, prior to or after scheduled construction activity.	IID	In 2009 ID coordinated with the IT on locating the mitigation for impacts to Native Tree and Tamarisk Scrub habitat in the buffer areas of the Managed Marsh. In 2010 IID implemented a supplemental planting plan for the western buffer area. In 2013 IID started planning for additional created Native Tree habitat as part of Phase II of the Managed Marsh. The management and monitoring for the Native Tree mitigation area is included in the Managed Marsh Adaptive Management Plan (AMP) which is being implemented by IID.
26	IID will submit a report of the results of the vegetation monitoring of created native tree habitat to the Department and Service annually until achievement of the success criteria has been demonstrated. These annual reports will: • Present the results of the vegetation monitoring specified by the IT • Describe the overall condition and development of the native tree habitat • Indicate whether the success criteria have been met • Describe recommendations from the IT for creation and management of the native tree habitats and the bases for the recommendations	Attachment 2	During Permit term, annually, after creation of tree habitat	IID	The Managed Marsh AMP includes periodic vegetation monitoring of the entire complex including the buffer zones. IID updates the IT on the status of mitigation measures, operation/ maintenance activities and recommendations for corrective action at the scheduled IT meetings. In 2013 the IT was notified that the western buffer had been damaged in an

	Mitigation Measure	Source	Implementation Schedule	Responsible Party	Status / Date
					accidental fire. They were also notified that trees in the eastern buffer were not maturing and that IID would consider various management options to correct the problem. A more detailed report of the condition of the Managed Marsh buffer zones and the Native Tree habitat contained within them is included in Sections 2.2.2 and 2.2.3 of the 2012 Mitigation Implementation Annual Report
27	For created and acquired habitat, IID will work with the IT to prepare a management plan for the property that describes how the property will be managed. The management plan will describe the actions that IID will take to maintain the ecological functions of the created and acquired habitat. While the specific management needs will vary depending on the property, considerations for the management plan include: • Measures to control human access (e.g., fencing, signage) • Frequency at which land will be visited to assess maintenance/management needs • Types of maintenance action (e.g., removing garbage, repairing fences) • Vegetation management practices (e.g., prescribed burning, removal of exotic plants) IID will submit management plans to the Department and Service for approval within 1 year of completing habitat creation activities or recording a conservation easement for acquired habitat.	Permit	During Permit term, within 1 year of completing habitat creation or recording a conservation easement for acquired habitat.	IID	The management plan for the native tree mitigation is included in the Managed Marsh Adaptive Management Plan. IID continued the monitoring of the Native Tree habitat in 2013. See Section 2.3.2 Tamarisk Scrub and Native Tree Habitat Conservation Habitat (4) Status of Native Tree Habitat Area
28	Following achievement of the success criteria and for acquired habitat, IID will continue to assess the condition of the native tree habitat. IID will submit annual reports that: • Present the results of any long-term vegetation monitoring required by the IT as part of the habitat management plans • Indicate whether the success criteria are being met • Describe recommendations from the IT for management of the native tree units and the bases for the recommendations IID will submit a report of the results of bird surveys to the Department and Service each year that the surveys are conducted as specified by the IT. The report will list the species and number of individuals recorded for the current year's survey and in each previous survey for the habitat area surveyed. The report will include the IT's assessment of the effectiveness of the native tree habitat in meeting the biological goal as described under Section 2.2.3: Adaptive Management Program (see Attachment 2). The report also will include the IT's recommendations for creation and management of the native tree units and the bases for the recommendations.	Attachment 2	During Permit term, following acquisition and management of native tree habitat, and following achievement of success criteria.	IID	A report on the status of the Native Tree habitat is included in the 2013 Mitigation Implementation Annual Report. As noted above the IT was notified on an accidental fire in the west buffer and of issues with growth of the trees in the east buffer. The buffer zones are included in the when the Managed Marsh bird surveys. The results are presented in Section 2.3.2 Drain Habitat Conservation Strategy (4) Creation and Management of Managed Marsh Habitat – Phase I and in an Appendix to this report.

	Mitigation Measure	Source	Implementation Schedule	Responsible Party	Status / Date
29	If IID installs subsurface seepage recovery systems on the East Highline Canal, prior to the initiation of construction, IID will determine the acreage of seepage community vegetation that will be removed and permanently lost because of the construction. For seepage community vegetation that would be permanently lost, IID will create or acquire native tree habitat consisting of mesquite bosque or cottonwood-willow habitat. The amount of habitat to acquire or create will be calculated based on the following ratios: • If IID creates habitat prior to installing the subsurface recovery systems, the mitigation ratio for the acreage of created habitat to lost acreage of tamarisk will be 0.5:1 as long as the created habitat meets the success criteria. • If IID creates habitat after installing the subsurface recovery systems, the mitigation ratio for the acreage of the created or acquired habitat to lost acreage of tamarisk will be 1.5:1. The habitat will be created or acquired within 1 year of initiation of construction activities unless otherwise agreed to by IID, the Department, and Service.	Permit	During Permit term, prior to and following installation of seepage recovery system along EHL Canal.	IID	IID designed the seepage recovery systems to minimize/avoid vegetation lost within adjacent seepage vegetation communities. IID will continue to monitor the existing seepage vegetation, as long as the seepage recovery systems are operational, to determine if the seepage recovery process is impacting the seepage community vegetation. No impact to Tamarisk Scrub or Native Tree habitat caused by the seepage recovery systems was identified in 2013. See Section 2.3.2 - Tamarisk Scrub Habitat Conservation Strategy (2) Seepage Recovery and Tailwater Return Systems
30	If IID elects to acquire habitat, IID will work with the IT to identify a property for acquisition. Habitat to be acquired must support mesquite bosque or cottonwood-willow habitat, occur within the Salton Sea Basin and meet with the approval of the Department and Service. If the only available properties that meet these requirements are larger than required to compensate for the lost acreage, IID will acquire the least expensive property. IID can use the additional acreage of the acquired habitat to fulfill the mitigation obligations of Condition of Approval 4(f)(i), ii, and iv). IID will place a conservation easement on acquired lands and provide for the property to be managed for Covered Species in perpetuity. With the approval of the Department and Service, IID may transfer the land to a third party who agrees to and is authorized to manage the land for habitat conservation purposes. If IID transfers the land to a third party, IID will establish an endowment fund adequate to provide for the management of the lands in perpetuity.	Permitee	During Permit term, prior to or following installation of seepage recovery system along EHL Canal.	IID	IID has located the native tree habitat mitigation in the buffer areas of the Managed Marsh complex located on land owned by IID. No additional land was acquired in 2013. Initial planning for Phase II of the Managed Marsh was implemented in 2013. The current plan includes additional Native Tree habitat (mesquite) is planned for the buffer areas and several of the marsh cells will include willow trees. Phase II of the Managed Marsh is located on IID owned property.
31	If IID elects to create habitat, IID will work with the IT to develop a habitat creation plan. The habitat creation plan will include the following information: • Location • Planting plan (including species composition and layout) • Grading and other construction activities • Long-term management practices • Vegetation and species use monitoring • Success criteria for the plantings and the actions that IID will take if the success criteria are not met IID will submit habitat creation plans to the Department and Service for approval prior to initiation of habitat creation activities. IID will provide for the management of created native tree habitat in perpetuity.	Permit	During Permit term, prior to or following installation of seepage recovery system along EHL Canal.	IID	The inclusion of the native tree habitat into the Managed Marsh complex buffer areas was discussed with the IT in several of the IT updates (July to October, 2009) on the design and construction of the Managed Marsh. IID provided a copy of the draft plan for Phase II of the Managed Marsh to the IT in December 2013. IID updates the IT as needed in scheduled IT meetings regarding the status of the mitigation area and any

	Mitigation Measure	Source	Implementation Schedule	Responsible Party	Status / Date
					management activities implemented or planned for the site.
32	IID will submit a report of the results of the vegetation monitoring of created native tree habitat to the Department and Service annually until achievement of the success criteria has been demonstrated. These annual reports will: • Present the results of the vegetation monitoring specified by the IT • Describe the overall condition and development of the native tree habitat • Indicate whether the success criteria have been met • Describe recommendations from the IT for creation and management of the native tree habitats and the bases for the recommendations If the vegetation has not met the success criteria, the IT will identify appropriate management actions to achieve the desired characteristics.	Attachment 2	During Permit term, following creation and monitoring of created native tree habitat required by installation of seepage recovery system along EHL Canal.		The report of monitoring and management of the Native Tree habitat is included in the Annual Report. The report includes a description of the actions taken in response to the fire in the western buffer. It also discusses the growth issues in the eastern buffer. See Section 2.3.2 - Tamarisk Scrub Habitat Conservation Strategy (2) Seepage Recovery and Tailwater Return Systems
33	For created and acquired habitat, IID will work with the IT to prepare a management plan for the property that describes how the property will be managed. The management plan will describe the actions that IID will take to maintain the ecological functions of the created or acquired habitat. While the specific management needs will vary depending on the property, considerations for the management plan include: • Measures to control human access (e.g., fencing, signage) • Frequency at which land will be visited to assess maintenance/management needs • Types of maintenance action (e.g., removing garbage, repairing fences) • Vegetation management practices (e.g., prescribed burning, removal of exotic plants) IID will submit management plans to the Department and Service for approval within 1 year of completing habitat creation activities or recording a conservation easement for acquired habitat.	Permit	During Permit term, within 1 year of creation or acquisition of native tree habitat required by installation of seepage recovery system along EHL Canal.	IID	The management plan for the native tree mitigation area is included in the Managed Marsh AMP which was submitted to the IT for review and comment. .
34	Following achievement of the success criteria and for acquired habitat, IID will continue to assess the condition of the native tree habitat. IID will submit annual reports that: • Present the results of any long-term vegetation monitoring required by the IT as part of the habitat management plans • Indicate whether the success criteria are being met • Describe recommendations from the IT for management of the native tree units and the bases for the recommendations IID will submit a report of the results of bird surveys to the Department and Service each year that the surveys are conducted as specified by the IT. The report will list the species and number of individuals recorded for the current year's survey and in each previous survey for the habitat area surveyed. The report will include the IT's assessment of the effectiveness of the native tree habitat in meeting the biological goal as described under Section 2.2.3: Adaptive Management Program (see Attachment 2).	Attachment 2	During Permit term, following acquisition and management of native tree habitat, and following achievement of success criteria.	IID	No action required in 2013.

	Mitigation Measure	Source	Implementation Schedule	Responsible Party	Status / Date
	The report also will include the IT's recommendations for creation and management of the native tree units and the bases for the recommendations.				
35	As a basis for assessing the effectiveness of native tree habitat, IID will monitor use of the created or acquired habitat by birds. Most of the Covered Species associated with tamarisk scrub occur sporadically and in low numbers in the Permit area. As a result, focusing only on Covered Species to determine whether the created habitat is functioning might not provide meaningful information. Thus, rather than designing the monitoring specifically to detect Covered Species, species use monitoring will consist of general bird surveys. All birds (both Covered Species and species not covered by the Permit) observed during the surveys will be recorded. Interpretation and evaluation of the monitoring results will focus on broad groups of birds (e.g., raptors, neotropical migrants) that encompass and include the Covered Species associated with tamarisk scrub, as indicators for the Covered Species. The monitoring surveys will be designed to provide seasonal occurrence data. Point counts and/or other appropriate survey methodology will be used. The IT will develop the specific requirements for monitoring bird use of the created/acquired habitat, including the survey techniques, timing of the surveys, and duration of the surveys following creation of the habitat. The IT annually will review results of bird surveys of the created/acquired native tree habitat and assess the effectiveness of the native tree habitat in meeting the biological goal of the Condition of Approval 4(f). In evaluating the effectiveness of the native tree habitat and as a basis for determining whether management adjustments are appropriate, the IT will consider the following: • The species composition and seasonal occurrence of birds using created or acquired native tree habitat relative to other native tree habitats and/or tamarisk scrub in the Salton Sea Basin to the extent that survey information is available for other areas in the basin. • The species composition and life history functions (as indicated by season of occurrence) of birds using created or acquired native tree habitat relative to that found in the baseline surveys of the drains for survey locations dominated by tamarisk. • The species composition and life history functions (as indicated by season of occurrence) of birds using created/acquired native tree habitat relative to other native tree habitats and/or tamarisk scrub outside of Salton Sea Basin. • The number of consecutive years the species was reported in the created/acquired habitat. • The trends of local (Imperial Valley) and regional populations of individual bird species or groups of species, if available.	Attachment 2	During Permit term, following creation or acquisition of native tree habitat.	IID/IT to design monitoring approach, IID to implement approach.	The native tree mitigation area is managed and monitored as part of the Managed Marsh AMP and will be included in the monthly avian use surveys at the marsh. The buffer zones are included in the when the Managed Marsh bird surveys. The results are presented in Section 2.3.2 Drain Habitat Conservation Strategy (4) Creation and Management of Managed Marsh Habitat – Phase I and in an Appendix to this report.
36	For scheduled construction activities, including installation of subsurface seepage recovery systems that will remove tamarisk, cottonwoods, willows or mesquite, the site will be surveyed to determine	Permit	During Permit term, prior to scheduled Construction	IID	In 2013 123 construction sites were evaluated and no sites were identified as suitable breeding/nesting

	Mitigation Measure	Source	Implementation Schedule	Responsible Party	Status / Date
	whether any Covered Species are potentially breeding at the site. Surveys will follow accepted protocols for each Covered Species. If no accepted protocol exists, IID will submit a survey protocol to the Department and Service for approval prior to conducting the surveys. If Covered Species are found to be potentially breeding on the project site, IID will schedule the construction activities that directly affect habitat to occur outside of the breeding season.		Activity.		habitat. See Section 2.3.2 2 - <u>Tamarisk Scrub and/or Native Tree Habitat Conservation Strategy.</u> (1) Construction Activities [Draft HCP, Tree Habitat-1 and -3. See Section 2.3.6 - <u>Burrowing Owl Mitigation Measures</u> for burrowing owl mitigation information
37	Upon completion of Condition of Approval 4(c)(i) IID will conduct a survey of the areas designated as (1) "shoreline strand," (2) "adjacent wetland" with tamarisk as the primary vegetation as shown in the Salton Sea Digital Atlas (University of Redlands 1999), and (3) currently inundated areas that become exposed in the future by a reduction in water surface elevation of the Salton Sea. The general approach to the survey is described in Attachment 2. In consultation with the IT, IID will develop the specific survey protocol necessary to establish the acreage in 2018 and to verify and quantify net changes in the total amount of tamarisk in shoreline strand and adjacent wetland areas in the future. The study plan will be submitted to the Department and Service for approval.	Permit	In 2018	IID	No action required in 2013.
38	If the survey conducted in 2018 shows no change or a net gain in the acreage of tamarisk relative to the 2,642 acres currently available, no mitigation will be required at that time. IID will repeat the survey every 5 years for the remainder of the Permit term, but may choose to conduct the surveys more frequently. If the acreage of tamarisk scrub in shoreline strand, adjacent wetland, and currently inundated areas exposed in the future is found to be less than 2,642 acres at any time during the remainder of the Permit, and the reduction can be reasonably attributable to the water conservation and transfer project, IID will mitigate the net loss (i.e., the difference between the acreage found in survey and 2,642 acres except as qualified below) by acquiring or creating native tree habitat as described below. IID will not be responsible for losses of tamarisk clearly caused by unrelated activities such as fire, or chemical or mechanical removal by a landowner other than IID. IID will not be required to mitigate losses of tamarisk scrub greater than 2,642 acres. If necessary, IID will create or acquire native tree habitat consisting of mesquite bosque or cottonwood-willow habitat in amounts calculated based on the following ratios. • If IID creates habitat prior to the surveys showing a net loss in the amount of tamarisk, the mitigation ratio for the acreage of created habitat to net lost acreage of tamarisk will be 0.25:1 as long as the created habitat meets the success criteria. • If IID creates habitat after the surveys show a net loss or IID acquires existing habitat, the mitigation ratio for the acreage of the created or acquired habitat to lost acreage of tamarisk will be 0.75:1. The habitat will be created or	Permit	During Permit term, after survey in 2018	IID	No action required in 2013.

	Mitigation Measure	Source	Implementation Schedule	Responsible Party	Status / Date
	acquired within 1 year of documenting a net reduction in tamarisk scrub unless otherwise agreed to by IID, the Department and Service. • If IID elects to acquire habitat, IID will work with the IT to identify a property for acquisition. Habitat to be acquired must support mesquite bosque or cottonwood-willow habitat and occur within the Salton Sea Basin. If the only available properties that meet these requirements are larger than required to compensate for the lost acreage, IID may acquire the least expensive property. IID can use the additional acreage of the acquired habitat to fulfill future mitigation obligations of Condition of Approval 4(f)(i , ii and iv). IID will place a conservation easement on acquired lands and provide for the property to be managed for Covered Species in perpetuity. Within 1 year of recording the conservation easement, IID will prepare and submit to the Department and Service for approval a management plan for the property that describes how the property will be managed. The management plan will describe the actions that IID will take to maintain the ecological functions of the acquired habitat. While the specific management needs will vary depending on the property acquired, considerations for the management plan include: – Measures to control human access (e.g., fencing, signage) – Frequency at which land will be visited to assess maintenance/management needs – Types of maintenance action (e.g., removing garbage, repairing fences) Vegetation management practices (prescribed burning, removal of exotic plants)				
39	With the approval of the Department and Service, IID may transfer the land to a third party who agrees to and is authorized to manage the land for habitat conservation purposes. If IID transfers the land to a third party, IID will establish an endowment fund adequate to provide for the management of the lands in perpetuity. If IID elects to create habitat, IID will develop a habitat creation and management plan. The habitat creation and management plan will include the following information: • Location • Planting plan (including species composition and layout) • Grading and other construction activities • Long-term management practices • Vegetation and species use monitoring • Success criteria for the plantings and the actions that IID will take if the success criteria are not met	Permit	During Permit term, after survey in 2018	IID	No action in 2013
40	If a Salton Sea restoration project is implemented that affects the water surface elevation of the Sea prior to 2018, IID will not be required to implement Condition of Approval 4(f)(iv). If a Salton Sea restoration project is implemented following completion of Condition of Approval 4(c)(i), IID will discontinue monitoring the shoreline strand and adjacent wetlands and will not be responsible for mitigating any additional reductions in the amount of tamarisk in these areas over the term	Permit	During Permit term	IID	No action in 2013.

	Mitigation Measure	Source	Implementation Schedule	Responsible Party	Status / Date
	of the Permit. Further, in the event that mitigation water is allowed to flow to the Sea beyond 2017 (e.g., mitigation of air quality impacts), IID will not be required to conduct surveys or mitigate changes in the amount of tamarisk scrub adjacent to the Sea.				
41	All cottonwood-willow and tamarisk stands will be evaluated for Southwestern Willow Flycatcher potential breeding habitat suitability. Using the Anderson and Ohmart classification system (1994), each Salt Cedar III and IV and each Cottonwood-Willow I, II, III, and IV stand will be evaluated for suitability based on density, structure, and presence of standing water or saturated soils during the breeding season. Suitable breeding habitat will be identified based on the following characterizations excerpted from the draft Southwestern Willow Flycatcher Recovery Plan: *"….general unifying characteristics of flycatcher habitat can be identified. Regardless of the plant species composition or height, occupied sites usually consist of dense vegetation in the patch interior, or an aggregate of dense patches interspersed with openings. In most cases this dense vegetation occurs within the first 3-4 m (10-13ft) above ground. These dense patches are often interspersed with small openings, open water, or shorter/sparser vegetation, creating a mosaic that is not uniformly dense. In almost all cases, slow-moving or still surface water and/or saturated soil are present at or near breeding sites during wet or non-drought years.* *Thickets of trees and shrubs used for nesting range in height from 2 m to 30 m (6 to 98 ft). Lower-stature thickets (2-4 m or 6-13 ft) tend to be found at higher elevation sites, with tall stature habitats at middle and lower elevation riparian forests. Nest sites typically have dense foliage from the ground level up to approximately 4 m (13 ft) above ground, although dense foliage may exist only at the shrub level, or as a low dense canopy. Nest sites typically have a dense canopy, but nests may be placed in a tree at the edge of a habitat patch, with sparse canopy overhead. The diversity of nest site plant species may be low (e.g., monocultures of willow or tamarisk) or comparatively high. Nest site vegetation may be even- or uneven-aged, but is usually dense (Brown 1988, Whitfield 1990, Muiznieks et al. 1994, McCarthey et al. 1998, Sogge et al. 1997, Stoleson and Finch 1999)."* These evaluations will take place prior to any IID water conservation actions that could impact tamarisk habitat. Upon completion of this initial evaluation, a specific protocol for the habitat monitoring (Condition of Approval 4(f)(vii)) will be developed in consultation with the Department and Service. This protocol will address the timing and duration of monitoring	Permit	During Permit term, prior to IID water conservation actions that could affect tamarisk	IID	The IT has accepted the BOR report of suitable habitat within the Imperial Valley and around the Salton Sea. In 2013, after consultation with the IT, IID conducted minor clearing on the New River access road to facilitate data gathering and field access for the design of Species Conservation Habitat. In 2013 high flows in the river damaged a portion of the berm along the east side of the river channel. After consultation with the IT, IID made repairs to the area. Several field visits to the sites were conducted prior to the activity to evaluate vegetation and to survey for active nesting. Neither of the above activities impacted Southwestern willow flycatcher habitat. See Section2.3.2 Tamarisk Scrub and/or Native Tree Habitat Conservation Strategy (3) Southwestern Willow Flycatcher Habitat.

	Mitigation Measure	Source	Implementation Schedule	Responsible Party	Status / Date
	activities and other details as required.				
42	If suitable Southwestern Willow Flycatcher breeding habitat is identified during Condition of Approval 4(f)(vi), this habitat will be monitored to quantify changes in the amount and quality of habitat. If suitable breeding habitat is lost or the quality of the habitat declines as a result of IID's water conservation activities so that it is no longer considered suitable breeding habitat, Permittee will mitigate this loss through development of replacement habitat with native vegetation at a 1:1 ratio. If replacement habitat is to be acquired the replacement habitat will be identified and acquisition process started within 6 months of identification of the habitat loss. If habitat is to be created, creation plans will be developed within 3 months of identification of the habitat loss, and planting will occur within 1 year of identification of the habitat loss. IID will work with the Department and Service to develop the specific survey protocol necessary to monitor and quantify changes in the amount and quality of breeding habitat in the future.	Permit	During Permit term, following identification of, and impact to, identified suitable WIFL breeding habitat in Plan Area.	IID	No habitat loss was identified in 2013. See MM 41
43	A long-term adaptive management and monitoring plan will be developed within 6 months of purchase or creation of habitat. This plan will be approved by the Department and Service. The adaptive management plan will also include success criteria. Specific locations for the replacement habitat would be identified in consultation with the Department and Service and would be located in the Salton trough or lower Colorado River corridor. Following creation of native tree habitat, Permittee will survey the created habitat for willow flycatchers according to the survey protocol developed in the monitoring plan. Permittee, the Department and Service will annually review results of the willow flycatcher surveys and assess the effectiveness of the native tree habitat in providing habitat for willow flycatchers. In evaluating the effectiveness in providing habitat for willow flycatchers, Permittee, the Department and Service will consider the prior use of the habitat that was lost by willow flycatchers and attempt to reach equal or higher success. Management will be adjusted as necessary based on the results of the annual surveys.	Permit	During Permit term, within 6 months of acquisition or creation of suitable WIFL breeding habitat.	IID	No action in 2013. Portions of Phase I of the Managed Marsh were identified as medium quality habitat for willow flycatcher . As these areas mature and develop a more closed canopy they may become higher value habitat. IID will monitor these areas on an annual basis.
44	Before construction activities begin, potential nesting habitat on the construction site and within 0.25-mile of the construction site will be surveyed to determine if elf owls are nesting. If nesting elf owls are found, a 0.25-mile buffer will be established around the nest site. The buffer will be staked and flagged. No construction activities will be permitted within the 0.25-mile buffer from April 1 to July 31 or until young have fledged. Vegetation within the 0.25-mile buffer may be removed after the young have fledged.	Permit	During Permit term, prior to construction activities within potential elf owl nesting habitat.	IID	No elf owl nesting was identified in 2013.
45	IID will create at least 190 acres of managed marsh habitat. Within 1 year of the issuance of the Permit, IID will conduct a vegetation survey of the drainage system following the protocol in Attachment 3. Based on this vegetation survey, the IT will determine the amount of habitat for Covered Species supported in the drains. The acreage required to compensate for selenium effects will be recalculated based on the results of the vegetation survey following the same methodology described in Section 3.5.2: Effects of the Covered Activities of the Final Environmental Impact Report for the Imperial Irrigation District Water Conservation and Transfer Project (December 2002). If the acreage of habitat for Covered Species found in	Permit	By November 2005.	IID	IID completed a Drain Vegetation Mapping effort in October 2004. The results are included <u>in Section 2.3.3 Desert Habitat Conservation Strategy (1) Vegetation Surveys.</u> IID completed Phase I of the Managed Marsh complex in 2009. It is an approximately 375 acre complex of desert riparian, mesic grassland, scrub-shrub and emergent

	Mitigation Measure	Source	Implementation Schedule	Responsible Party	Status / Date
	the drains through the vegetation survey plus the acreage required to compensate for selenium effects exceeds 190 acres, IID will create managed marsh habitat in an amount equal to the greater acreage up to a maximum of 652 acres. Creation of the managed marsh habitat will be phased over 15 years, with at least one-third of the total amount created within 5 years, two-thirds within 10 years, and the total amount created within 15 years of issuance of the Permit.				wetland habitat. See Section 2.3.3 Drain Habitat Conservation Strategy (2) Creation and Management of Managed Marsh.
46	IID will ensure that the water used to support the managed marsh habitat is irrigation water from the LCR or is other water with the same selenium concentration as water from the LCR or that meets an EPA selenium standard for protection of aquatic life that has received a No Jeopardy determination from the Service, whichever is greatest.	Permit	During Permit term and operation of Managed Marsh Complex.	IID	Water delivered to the Managed Marsh complex in 2013 was Colorado River water delivered via the IID canal system. As per the Managed Marsh Adaptive Management Plan (AMP) IID monitors selenium concentrations at various locations in the complex. A slightly higher concentration of selenium was noted in one of the cells in summer 2013. IID conducted additional field evaluations and altered the monitoring protocol to include quarterly sampling to more closely monitor the concentrations. See Section 2.3.3 Drain Habitat Conservation Strategy (2) Creation and Management of Managed Marsh.
47	The managed marsh habitat will be created on lands owned by IID. IID will work with the IT to determine the location and characteristics of the managed marsh habitat and develop long-term management plans. IID will submit habitat creation plans to the Department and Service for approval prior to initiation of habitat creation activities. Within 1 year of completing construction of the first phase of the managed marsh, IID will submit long-term management plans to the Department and Service for approval. IID will provide for the management of managed marsh habitat for the term of the Permit.	Permit	Selection of site by 2009 Phase I of Managed Marsh to be completed in October, 2009. Phase II by 31 December, 2014	IID	All three Phases of the Managed March will be created in an area bounded by Highway 111 (east), English Road (west), Pound Road (north) and Schrimpf Road (south). The IT reviewed and provided comment on the EIR/EIS documents pertaining to the selection of the Managed Marsh site. Phase I plans and Phase I, bounded by Hazard Road (P Lateral) and McDonald Road (O Drain) was completed in 2009. The IT reviewed/approved the plans for Phase I prior to construction Preliminary design for Phase II of the Managed Marsh, bounded by Phase I to the north and by Schrimpf Road (N Drain) to the south were started in 2013 and discussed at a 2013 IT meeting.

	Mitigation Measure	Source	Implementation Schedule	Responsible Party	Status / Date
			AMP submitted within one year of completion of Phase I (October, 2010)		A draft AMP was prepared and submitted to the IT in October 2010. IID has been managing the site per the guidelines in the AMP and per directives from the IT. See Section 2.3.3 Drain Habitat Conservation Strategy (2) Creation and Management of Managed Marsh.
48	To monitor the effectiveness of the managed marsh habitat in meeting its objectives, IID will monitor use of the managed marsh by Covered Species. The effectiveness monitoring data also will provide the basis for the adaptive management program. The IT annually will review results of Covered Species surveys and assess the effectiveness of the managed marsh in meeting the biological goal of Condition of Approval 4(g)(i). In evaluating the effectiveness of the managed marsh and as a basis for determining whether management adjustments are appropriate, the IT will consider the following: • The occurrence of Covered Species in the drains as determined by the baseline surveys of the drains and the managed marsh • The relative abundance of Covered Species in the drains as determined by the baseline surveys of both the drains and the managed marsh • The seasons when Covered Species use the drains as determined by the baseline surveys of the drains and managed marsh as an indicator of life history functions • The number of consecutive years individual species were reported in the drains as determined by the baseline surveys of the drains and the managed marsh (i.e., consistency of occurrence) • The presence, relative abundance and seasonal use of Covered Species on managed marshes of the state and federal refuges, if available • The trends of local (Imperial Valley) and regional populations of Covered Species, if available.	Attachment 2	During Permit term, following creation of managed marsh.	IID	IID monitored the mitigation site per the guidelines in the identified in the Managed Marsh AMP. IID conducts monthly wildlife surveys at the Manage Marsh and compiles the data into the annual report. Ancillary sightings by Managed March visitors are also complied on an annual basis. See Section 2.3.3 Drain Habitat Conservation Strategy (2) Creation and Management of Managed Marsh.
49	To avoid disturbing Covered Species that may be breeding, IID will not dredge the river deltas between February 15 and August 31, except as necessary to prevent flooding during storm events.	Permit	During Permit term	IID	In 2013, after consultation with the IT, IID conducted minor clearing on the New River access road to facilitate data gathering and field access for the design of Species Conservation Habitat. In 2013 high flows in the river damaged a portion of the berm along the east side of the river channel. After consultation with the IT, IID made repairs to the area. In both cases IID conducted field visits of the site prior to the activity and no nesting birds or flycatcher habitat were identified in the field

	Mitigation Measure	Source	Implementation Schedule	Responsible Party	Status / Date
					visits.
50	For scheduled construction activities associated with the drainage system, before initiation of construction activities, IID will survey the construction site to determine whether any Covered Species are likely to breed at the site as evidenced by the occurrence of appropriate vegetation and/or surveys for Covered Species. Surveys will follow accepted protocols for each Covered Species. If no accepted protocol exists, IID will submit a survey protocol to the Department and Service for approval prior to conducting the surveys. If Covered Species are found to be potentially breeding on the project site, IID will schedule construction activities that would remove habitat to occur outside of the breeding season.	Permit	During Permit term	IID	IID conducted field reconnaissance visits to 123 construction sites, per the IT accepted survey protocol to identify potential breeding/nesting habitat for Covered Species. No breeding Covered Species were identified at the sites. Burrowing owl surveys were conducted and potential burrows avoided. If an active burrow is identified during the nesting season, the burrow is either shielded in place or the construction activity is postponed to after the nesting season.
51	Permittee shall use taped calls only to initially locate individual rails, and not to elicit further behavior from rails, in order to reduce the chances of nest abandonment or other impacts to reproductive success. Tapes shall not be used to elicit responses from rails if the surveyor detects the presence of potential avian or mammalian predators that could injure or kill rail adults, chicks or eggs.	Permit	During Permit term, prior to scheduled construction activities in drains that may affect suitable rail habitat.	IID	IID did not conduct rail surveys in 2013. Yuma clapper rails were sighted at the site on several occasions in 2013.
52	Permittee shall not survey for rails during inclement weather conditions that would significantly reduce the ability to detect the rail species or expose rail nest contents to the elements (e.g., rain or strong wind) thus resulting in the failure of eggs to hatch or reducing chick survival.	Permit	During Permit term, prior to scheduled construction activities in drains that may affect suitable rail habitat.	IID	IID did not conduct rail surveys in 2013. Yuma clapper rails were sighted at the site on several occasions in 2013.
53	A long-term adaptive management plan will be developed for the Managed Marsh and submitted to the Department and Service for review and approval prior to initiation of habitat creation activities. An acceptable monitoring plan for the marshes, which specifies performance criteria for vegetation growth and rail use as well as for the frequency and techniques to be used in monitoring, will be developed. The created marsh habitat will be maintained and managed for at least the duration of the Permit term.	Permit	Plan developed within 1 year of the creation of the marsh.	IID	An AMP was prepared and submitted to the IT for review in October, 2010. IID continues to operate and manage the site per the AMP guidelines and IT input.
54	Following creation of the managed marsh habitat, the Permittee will survey the created habitat for rails. The surveys will be conducted annually for 5 years following creation of the managed marsh. The managed marsh will be considered successful when Yuma clapper rails and California black rails have been found to use the marsh during the breeding season, anytime during the five years following the creation of the marsh. If it is determined that either one or both of the species did not use the managed marsh during the five years, then the Department, the Service and the Permittee will meet to identify possible changes needed in the management of the existing aforementioned marsh.	Permit	During Permit term, following creation of managed marsh.	IID	Vocalization surveys for Yuma clapper rail and California black rails were not conducted in 2013. Yuma clapper rails were sighted at the site on numerous occasions in 2013.
55	If IID builds additional power lines to provide power to pumps to run tailwater return systems, IID will install markers (e.g., flagging, balls, discs) in accordance with industry standards for reducing bird strikes on the	Permit	During Permit term, in association with transfer-related	IID	Power lines built as part of the seepage recovery system were equipped with markers.

	Mitigation Measure	Source	Implementation Schedule	Responsible Party	Status / Date
	new power lines to alert birds to the presence of the power lines.		power line erection.		
56	IID will plant cover crops on or ridge till all lands that it currently owns and fallows to conserve water in order to maintain foraging opportunities for Covered Species. Cover crops will be planted during the first year the land is fallowed and will be replanted at a frequency necessary to maintain a layer of plant material on the soil. IID will work with the IT to select appropriate cover crop types.	Permit	During Permit term	IID	Cover crops were not planted on IID lands. Crop residue and fallowed fields appear to be providing some habitat. IID cooperates with several local habitat management groups to provide fallowed fields for inclusion in the Upland Game Bird habitat program.
57	Condition of Approval 4(h)(i) requires IID to install markers on power lines if it builds additional lines to provide power to pumps to run tailwater return systems. When IID implements this measure, IID will submit a report to the Department and Service within one month of erecting the new power line. The report will include: • Location • Length of power line constructed • Type, number and spacing of markers used	Attachment 2	During Permit term, within 1 month of erecting new transfer-related power line.	IID	No tailwater return systems were installed in 2013. See Section 2.3.2 Tamarisk Scrub and/or Native Tree Habitat Conservation Strategy (2) Seepage Recovery Systems.
58	IID will implement a worker education program. Workers conducting O&M activities along the AAC, East Highline, Westside Main, Thistle, or Trifolium Extension canals will be required to attend a worker education program to ensure proper implementation of the Permit measures addressing desert habitat for Covered Species. Workers will be instructed on the requirements of the Permit within six months of issuance of the Permit. The worker education program will be conducted at least annually to ensure instruction of new employees and as a refresher. For new workers, IID will ensure that they are informed of and understand the requirements of the Permit prior to conducting O&M activities either individually or through an annual education program. The worker education program will instruct workers on the identification and habitat association of Covered Species using desert habitat. Pictures of the different habitat types will be included in the manual with a list of Covered Species potentially occurring in each habitat type. Activities with the potential to affect Covered Species inhabiting desert habitat and the practices to follow to minimize potential adverse effects to these species will be explained. Workers will be instructed on procedures approved by the IT for moving Covered Species in the event that a Covered Species is found during O&M activities and is in imminent danger from covered activities. Workers will be required to report any observations of dead or injured individuals of the Covered Species or when they relocate an individual.	Permit	Worker Education Program conducted at least annually during Permit term.	IID	IID combined the burrowing owl training, desert habitat and other mitigation measures training in 2011. In 2012 IID O&M workers were provided with desert species identification flash cards and were instructed to avoid the noted species and told to contact an environmental specialist or IID biologist if the species was within the construction area. In 2013 IID conducted annual training in the spring of each year, with a refresher course in the autumn or early winter. Other training is scheduled during the year to instruct newly hired employees or to address specific issues identified in the mitigation program. No Covered Species were moved and no observations of Covered Species mortality were reported in 2013.
59	A worker education manual will be prepared by IID with the concurrence of the Department and Service within 1 year of issuance of the Permit. The manual will be distributed to each person conducting O&M activities along the AAC, East Highline, Westside Main, Thistle, or Trifolium canals. The manual will include a photograph/drawing of each Covered Species associated with desert habitat and brief information on its identification. As information of the occurrence and distribution of Covered Species along the AAC, East Highline, Westside Main, Thistle, and	Permit	Completed within 1 year of permit. To be updated annually in 2008, 2009, and 2010, and every 5 years thereafter for permit term.	IID	The Worker Education Manual has been completed. No updates of the education manual have been implemented.

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	Trifolium Extension canals becomes available through the survey program (see Condition of Approval 4(i)(v)), it will be added to the manual. The manual will also summarize the Permit's requirements for O&M activities for easy reference. The IT will review the manual annually for 3 consecutive years and every 5 years thereafter, and update it as appropriate.				
60	IID will conduct O&M activities in accordance with the following measures: • Workers will be instructed to be alert to the occurrence of Covered Species in roadways while driving and to avoid hitting individual Covered Species at all times. • Prior to moving a parked vehicle, workers will check around and underneath the vehicle for Covered Species. If a Covered Species is found in harm's way and is moving, it will be allowed to move away from the vehicle on its own accord before the vehicle is moved. If the individual is not moving, the worker will relocate the individual to a nearby safe location following procedures outlined in the worker education program. • Workers will be familiarized with covered plants species and instructed to avoid injuring or uprooting plants. • Workers will properly dispose of garbage in closed containers to minimize raven attraction. • Workers will not be permitted to bring pets to the work site. • IID will restrict O&M activities to previously disturbed areas within the right-of-way along the existing AAC, the future parallel canal, East Highline and portions of the Westside Main, Thistle, and Trifolium Extension canals where the canals are adjacent to native desert habitat. • O&M will include periodic removal of vegetation from the maintenance roads and canal embankments to prevent establishment of vegetation that could attract Covered Species. These practices are interim measures and may be modified over the term of the Permit based on survey results and through the adaptive management and monitoring program. The IT will review these measures annually for 3 consecutive years (years 2, 3, and 4 after Permit issuance) and at least every 5 years thereafter, and may adjust the measures as long as the adjustments do not increase the total cost of implementing the Permit.	Permit	During Permit term	IID	O&M workers are trained to comply with the noted measures annually. No modifications to the desert habitat measures were made in 2013. IID will continue to evaluate the mitigation measures as they are implemented.
61	IID will submit an annual report to the Department and Service regarding the take avoidance and minimization aspects of Condition of Approval 4(i). The report will include: • A narrative description of the effectiveness of the take avoidance and minimization measures • Recommendations for modifications to the take avoidance and minimization measures to improve their effectiveness	Attachment 2	Annually, during Permit term	IID	There were no recommendations for modification of the avoidance and minimization measures in 2013. A discussion of the Worker Education program is included in the 2013 Annual Report.
62	IID will implement the following measures while conducting scheduled construction activities within its rights-of-way along the AAC, East Highline, and portions of the Westside Main, Thistle, and Trifolium Extension canals containing native desert habitat. Scheduled construction activities are structure maintenance activities and canal lining, excluding the	Permit	During Permit term, while conducting scheduled construction activities within ROW along	IID	The measures noted are included in the IID Worker Education Training program.

	Mitigation Measure	Source	Implementation Schedule	Responsible Party	Status / Date
	Proposed AAC Canal Lining Project (Reclamation and IID 1994). • Where practicable, IID will limit construction activities, including vehicle travel, in the rights-of-way of the AAC and future parallel canal, the East Highline Canal, and the Westside Main Canal to previously disturbed areas. • Staging areas will be situated on the agricultural side of the canal except where the canal is not bordered by agricultural areas. • Prior to initiating construction activities, the Implementation Biologist will conduct a habitat survey of the construction area and adjacent areas. Based on the habitat conditions and species survey information, the biologist will determine which Covered Species are likely to occur in or immediately adjacent to the construction area. IID will implement the species-specific minimization and avoidance measures contained in Condition of Approval 4(i)(vii-xiv) for the species identified by the biologist. • A biological monitor will be onsite during construction activities or exclusion fencing will be erected to keep Covered Species out of the construction area following clearance surveys, if conducted. • If a covered animal species occurs on the project site during construction, construction activities adjacent to the individual's location will be halted and the individual allowed moving away from the construction area on its own accord. If the individual is not moving, the Implementation Biologist or other trained worker will relocate it to a nearby safe location outside of the construction area. • The construction area will be clearly flagged prior to the start of construction activities and all construction activities will be confined to the demarcated area. To the extent practicable, the construction area will be situated and demarcated to avoid habitat for Covered Species. • After completion of the construction activities, IID will restore any native vegetation temporarily impacted by the construction. If native desert vegetation would be temporarily impacted by construction, prior to the start of construction activities, IID will develop a vegetation restoration and management plan in conference with the IT. The vegetation restoration and management plan will describe: (1) the amount and species composition of the vegetation that would be impacted, (2) the actions that IID will take to restore the disturbed area, (3) the criteria for assessing the success of the restoration, (4) the actions that will be undertaken if the success criteria are not achieved, and (5) long-term management actions. For native desert vegetation permanently lost, IID will mitigate in accordance with Condition of Approval 4(i)(vi). • A speed limit of 20 miles/hour will be maintained on the construction site, staging areas, and storage areas. • No pets will be permitted on the construction site. • Prior to moving a parked vehicle, the ground around and under the vehicle will be inspected		AAC, EHL Canal, and portions of the WSM, Thistle, and Trifolium Extension canals.		All construction sites are evaluated for potential habitat prior to the construction activity No biological monitors were required on 2013. No desert Covered Species were identified in 2013. IID O&M crews are instructed to stay within maintain ROW unless otherwise notified by the IID. No native desert vegetation was impacted in 2013.

	Mitigation Measure	Source	Implementation Schedule	Responsible Party	Status / Date
	for Covered Species. If an individual of a Covered Species is found and is moving, it will be allowed to move away from the vehicle on its own accord. If it is not moving, it may be removed and relocated to a nearby safe location following the procedures outlined in the worker education program.				
63	For a particular construction project, IID may implement alternative measures or modify the standard or species-specific avoidance and minimization practices if agreed to by the Department and Service. In addition, the standard and species-specific avoidance and minimization practices may be modified over the term of the Permit based on survey results and through the adaptive management and monitoring program. The IT will review these measures annually for three consecutive years (years 2, 3, and 4 following Permit issuance) and at least every five years thereafter, and may adjust the measures as long as the adjustments do not increase the cost of implementation.	Permit	During Permit term, in association with construction projects.	IID	IID and the IT continue to monitor and evaluate the effectiveness of the mitigation measures.
64	Within one year of the issuance of the Permit, IID will initiate a baseline survey of its rights-of-way on the AAC, the East Highline Canal, and the portions of the Westside Main, Thistle, and Trifolium Extension canals adjacent to desert habitat to determine the occurrence and location of Covered Species. The baseline surveys will be conducted for three consecutive years. The worker education manual will be revised to include a habitat map and map(s) of known locations of each of the Covered Species within the rights-of-way of these canals. The surveys will be repeated at least every five years and the worker education manual updated as necessary to accurately portray the occurrence and distribution of Covered Species within IID's right-of-way. The interval for repeating the surveys and updating the manual may be lengthened if agreed to by IID, the Department and Service. The IT will develop the specific survey protocols.	Permit	Within one year of permit issuance annually for three consecutive years. Thereafter, every five years for Permit duration	IID	Habitat mapping within rights-of-way along the noted canals was completed in 2006. Baseline Covered Species field surveys were completed (three years of surveys) in 2009. Based on the results of the first two survey years and on the removal of some Conditionally Covered species from the proposed HCP/NCCP Covered Species list, some species (bats and several others) were removed from the Year 3 survey protocol. The IT is currently discussing the interval in which to repeat the surveys.
65	IID will submit a report of the results of the desert habitat survey to the Department and Service within six months of completing the survey. The report will include the following: • A description of the survey methods • Acreages and maps of the various habitat types The raw data sheets will be made available to the Department and Service for review. IID will submit reports to the Department and Service within six months of completing Covered Species surveys. The report will include the following information: • Describe the survey methods used (as described in Section 2.8 of Attachment 2 and as modified by the IT) • List the species and number of individuals of each species observed • Identify the location of Covered Species • Present and discuss the relative abundance of Covered Species among the survey stations • Note indications of breeding activity by Covered Species	Attachment 2	Within 6 months of completion of desert habitat surveys.	IID	The desert habitat survey results have been presented to the IT. Baseline Covered Species field surveys were completed in 2009. Baseline reports and a preliminary database have been completed. Raw data sheets are on file at IID Operation Headquarters and are available for review.

	Mitigation Measure	Source	Implementation Schedule	Responsible Party	Status / Date
	As additional surveys are conducted, the reports will present the cumulative information collected. The raw data sheets will be made available to the Department and Service for review.				The IT has not yet determined the scope or interval of additional surveys.
66	If desert habitat used by Covered Species would be permanently lost as a result of O&M or construction activities, IID will determine the amount of habitat lost and acquire, or grant a conservation easement on land at a 1:1 ratio for the acreage impacted within 1 year of the removal of the habitat. IID will not permanently remove more than 100 acres of native desert habitat and/or tamarisk scrub habitat over the term of the Permit. Tamarisk scrub habitat would be mitigated in accordance with Condition of Approval 4(f)(i). Land to be acquired or subject to the conservation easement will have (1) known use by Covered Species that use the impacted areas or (2) be situated adjacent to areas of occupied habitat and support suitable habitat for the Covered Species that use the impacted habitat, and (3) is deemed to have long term viability as habitat for Covered Species based on its patch size, connectivity or location to other conserved habitat. IID will work with the IT to identify a property to acquire or cover with a conservation easement. IID will place a conservation easement on this acquired land or otherwise provide for the protection of the property in perpetuity. With the approval of the Department and Service, IID may transfer the land to a third party who agrees to and is authorized to manage the land for habitat conservation purposes. If IID transfers the land to a third party, IID will establish an endowment fund adequate to provide for the management of the land in perpetuity.	Permit	During Permit term, if action is determined to result in permanent loss of desert habitat.	IID	No desert habitat was permanently lost in 2013. The IT is evaluating desert habitat mitigation requirements.
67	Within 1 year of recording a conservation easement, IID will prepare and submit to the Department and Service for approval a management plan for acquired land and lands it owns that are subject to a conservation easement that describes how the property will be managed to maintain its suitability for the Covered Species. The management plan will describe the actions that IID will take to maintain the ecological functions of the acquired habitat. While the specific management needs will vary depending on the property acquired, considerations for the management plan include: • Measures to control human access (e.g., fencing, signage) • Frequency at which land will be visited to assess maintenance/management needs • Types of maintenance action (e.g., removing garbage, repairing fences) • Vegetation management practices (e.g., prescribed burning, removal of exotic plants) IID will provide for the management of the property in perpetuity.	Permit	During Permit term, within 1 year of IID recording a conservation easement.	IID	No action required in 2013.
68	For construction activities that would temporarily disturb native desert habitat, IID will prepare a restoration plan. The habitat restoration plan will include the following information: • Location • Planting plan (including species composition and layout) • Grading and other construction activities	Attachment 2	During Permit term, prior to initiation of construction activity that would temporarily disturb native	IID	No Native desert habitat was disturbed in 2013. -

	Mitigation Measure	Source	Implementation Schedule	Responsible Party	Status / Date
	necessary for restoration • Long-term management practices • Vegetation and Covered Species monitoring • Success criteria for the plantings and the actions that IID will take if the success criteria are not met IID will submit habitat restoration plans to the Department and Service for approval prior to initiating restoration actions.		desert habitat.		
69	IID will submit a report of the results of the vegetation monitoring of restored desert habitat to the Department and Service annually until achievement of the success criteria has been demonstrated. These annual reports will: • Present the results of the vegetation monitoring specified by the IT • Describe the overall condition and development of the native desert habitat • Indicate whether the success criteria have been met • Describe recommendations from the IT for creation and management of the native desert habitat and the bases for the recommendations • Describe the outcome of previous management actions Following achievement of the success criteria and for acquired habitat, IID will continue to assess the condition of the native desert habitat. IID will submit annual reports that: • Present the results of any long-term vegetation monitoring required by the IT as part of the habitat management plans • Indicate whether the success criteria are being met for restored habitat as appropriate • Describe recommendations from the IT for management of the native desert habitat units and the bases for the recommendations IID will submit a report of the results of surveys for Covered Species to the Department and Service each year that the surveys are conducted as specified by the IT. The report will list the species and number of individuals recorded for the current year's survey and in each previous survey for the habitat area surveyed. The report will include the IT's assessment of the effectiveness of the acquired and restored desert habitat in providing habitat for the target Covered Species. The report also will include the IT's recommendations for continued management of the native desert habitat and the bases for the recommendations.	Attachment 2	Annually, During Permit term until success criteria are achieved, following monitoring of restored desert habitat.	IID	No action required in 2013.
70	If a tortoise occurs on the project site during construction, construction activities adjacent to the tortoise's location will be halted and the tortoise allowed to move away from the construction site. If the tortoise is not moving, the biological monitor will move it to nearby suitable habitat outside the construction area. The tortoise will be placed in the shade of a shrub.	Permit	During Permit term, if desert tortoise occurs at construction site.	IID	No action required in 2013.
71	Before construction, the construction area and adjacent areas within 100 feet of the construction site will be searched for burrows that could be used by desert tortoises. When burrows are found, they will be checked for desert tortoises. Both occupied and unoccupied burrows will be flagged and avoided (employing a 50-foot buffer) during construction. If an	Permit	During Permit term, prior to construction in areas potentially suitable for desert tortoise.	IID	No tortoise burrows were identified in 2013.

	Mitigation Measure	Source	Implementation Schedule	Responsible Party	Status / Date
	occupied burrow cannot be avoided, it will be excavated and the tortoise moved to an unoccupied burrow outside the construction area that is approximately the same size as the one from which it was taken. If an existing burrow is unavailable, the biologist will construct or direct the construction of a burrow of similar shape, size, depth, and orientation as the original burrow. Desert tortoises moved during inactive periods will be monitored for at least two days after placement in the new burrows to ensure their safety. All desert tortoise handling and burrow excavation will be in accordance with handling procedures developed by the Service and conducted by an authorized biologist.				
72	Any construction pipe, culverts, or similar structures with a diameter of 3 to 12 inches that are stored on the construction site for one or more nights will be inspected for tortoises before the material is moved, buried, or capped. Alternatively, all such structures may be capped before being stored on the construction site.	Permit	During Permit term, prior to construction in areas potentially suitable for desert tortoise.	IID	No evidence of tortoise activity was identified in 2013.
73	Trench segments or other excavations will be fenced with temporary tortoise-proof fencing, covered at the close of each working day, or provided with tortoise escape ramps. All excavations will be inspected for tortoises before filling.	Permit	During Permit term, prior to construction in areas potentially suitable for desert tortoise.	IID	No trenches were excavated in suitable desert tortoise habitat in 2013.
74	Construction activities will be conducted only between dawn and dusk.	Permit	During Permit term, in association with construction projects conducted in areas potentially suitable for desert tortoise.	IID	All scheduled construction activities were conducted between dawn and dusk.
75	A clearance survey will be conducted during the 48 hours before construction activities begin. Desert tortoises found on the construction site will be moved to nearby suitable habitat outside the construction area. Following the clearance surveys, exclusion fencing will be erected to keep Covered Species out of the construction area or a biological monitor will be on-site during construction activities.	Permit	During Permit term, prior to construction in areas potentially suitable for desert tortoise	IID	No clearance surveys were required in 2013.
76	Before construction activities begin, the construction area will be surveyed for the presence of covered plant species. Surveys will be conducted during the time period necessary to identify these species but will be conducted within one year of initiating construction activities.	Permit	During Permit term, prior to construction in areas that could support covered plant species.	IID	No covered plant species were identified in construction areas during 2013.
77	If covered plant species occur on the construction area, an activity exclusion zone, 25 feet in radius, will be established around each plant. Exclusion zones will be flagged and staked in the field before construction begins. No surface disturbing activity will occur within the exclusion zones. If a 25-foot-radius exclusion zone cannot be established, IID will confer with the Department and Service regarding the best configuration of the exclusion zone, given the location of the plants and construction area requirements. If the plants cannot be avoided, IID will confer with the Department and Service. The Department and Service will determine if the plants can be transplanted. If the plants can be transplanted, IID will work with the Department and Service to identify a	Permit	During Permit term, if covered plant species are documented at construction area.	IID	No action required in 2013.

	Mitigation Measure	Source	Implementation Schedule	Responsible Party	Status / Date
	location and the appropriate procedures for transplanting those plants that cannot be avoided.				
sal init y 78	Permittee will develop a management plan for the abandoned AAC channel, prior to the new channel being constructed, that indicates the actions needed to maintain the abandoned sections for the specified purpose of an emergency use channel. The plan would include actions needed to keep the abandoned canal prism and maintenance roads free of vegetation.	Permit	By 31 December 2008.	IID	No action in 2013
79	Permittee will ensure that an appropriate level of connectivity between pupfish populations within individual drains (at the north and south ends of the sea) that are connected to the Salton Sea either directly or indirectly and that are below the first check will be maintained in the event that conditions in the Salton Sea become unsuitable for pupfish during the term of the Permit. The Permittee, in cooperation with the Department and Service, will undertake planning and studies so that before the salinity of the Salton Sea reaches 90 parts per thousand (ppt) (or lower as determined in consultation with the Department and Service), or physical barriers impede pupfish movement, the Permittee can implement a detailed plan for ensuring genetic interchange among the pupfish populations in the drains. Permittee shall design these inter-drain connections discussed in this Condition of Approval to minimize the maintenance requirements that could result in take of desert pupfish to the extent possible without significantly reducing their habitat value.	Permit	During Permit term, prior to SS salinity of 90 ppt and prior to formation of physical barriers to pupfish movement in drains direct to the SS.	IID	Conditions at the Salton Sea did not become unsuitable for desert pupfish in 2013. IID maintained drain connectivity in 2013. IID continued with development of construction methods that will minimize potential impacts to pupfish when the inter-drain connections are made or as existing drains are extended to maintain contact with the receding sea. The IT recommended changing the drain interconnection requirement from prior to 90 ppt to 70 ppt salinity. See Section 2.3.7 Desert Pupfish Conservation Strategy
80	The Permittee will maintain the current amount of potential pupfish drain habitat (expressed as linear channel distance) over the term of the Permit. This will be accomplished as the Sea recedes by extending or modifying existing IID and Coachella Valley Water District drains or by maintaining the suitability of naturally created drain channels. The design, configuration, and management of these areas will be developed jointly with the Permittee, Department and Service staff, and will be developed in consideration of the specific physical characteristics of pupfish habitat (e.g., water depth and velocity, and channel width) and water quality (e.g., turbidity and selenium concentration). Permittee will monitor the drains for pupfish use as the drain habitat is extended or created. Monitoring will occur for five years after creation, to allow pupfish to begin using the habitat. If pupfish use of these areas cannot be established after the initial five years, Permittee will work with the Service and Department to identify potential causes for pupfish absence. If pupfish do not use the habitat, Permittee, in coordination with the Service and Department, will implement actions in the management, operation or maintenance of the extended or modified drains that are appropriate to correct conditions that may be causing the absence of pupfish. These actions may entail minor adjustments to channel configuration (channel and pool depths, flow velocity, connectivity, and turbidity) vegetation management, and timing of scheduled maintenance.	Permit	During Permit term, as SS level recedes and drain habitat is extended or created.	IID	IID is coordinating with the IT to develop construction and maintenance methods that will reduce the potential for desert pupfish impacts as drains are extended to the sea. IID, the IT and the NCCP Science Advisory Committee began the evaluation of other potential mitigation measures, including the potential to create small ponded areas – connected to the sea as desert pupfish habitat. IID is monitoring constructed desert pupfish habitat at Trifolium12 and at McKendry Pond. See Section 2.3.7 Desert Pupfish Conservation Strategy

	Mitigation Measure	Source	Implementation Schedule	Responsible Party	Status / Date
	It is not anticipated that these actions will entail construction of new or replacement drain habitat, require supplemental flows in the drains, or other actions that may interfere with normal agricultural operations. Until such time as pupfish use is established Permittee shall continue working with the Service and Department to correct the conditions that may be causing the absence of pupfish.				
81	Once pupfish presence is confirmed in the drains, the drains will be monitored as per Condition of Approval 4(j)(ix).	Permit	During Permit term, following modification and monitoring of drains as SS level recedes.	IID	IID drains that are considered suitable pupfish habitat were monitored quarterly from July 2005 to April 2009 as part of the USGS agricultural drain study. The IT approved a desert pupfish trapping protocol in 2011 and IID continued pupfish monitoring in 2012. See Section 2.3.7 Desert Pupfish Conservation Strategy
82	Permittee will cause the Bureau of Reclamation to provide funding for siting and construction, and Permittee shall construct and maintain one pupfish refugium pond consistent with the "Desert Pupfish Recovery Plan" (Marsh and Sada 1993). This pond will be maintained for the purpose of assisting in the recovery efforts for that species. The Permittee will work with the Department and Service to determine the location, timing, and technique in implementing this measure.	Permit	During Permit term	IID	IID and BOR entered into a grant funding agreement (R10AP30002) in 2010, where BOR provided funding for the design and construction of the refugium. The refugium was completed in December, 2010. Based on concerns over an Asian tapeworm infestation at the grass carp grow-out facility the implementation of the refugium has been delayed. See Section 2.3.7- Desert Pupfish Conservation Strategy (1) Refugium
83	After pupfish have been stocked into the refugium pond, it will be monitored for 5 years to determine if successful reproduction is occurring. If successful reproduction is not occurring, Permittee in coordination with the Service and Department will implement actions in the management, operation or maintenance of the refugium that are appropriate to correct conditions that are causing the failure of pupfish to reproduce. These actions may entail minor adjustments to pond configuration (depth and shoreline complexity), vegetation management, and timing of scheduled maintenance. It is not anticipated these actions will entail construction of new or replacement refugium pond habitat, requirements for supplemental flows to the refugium, or other actions that may interfere with normal agricultural operations.	Permit	During Permit term after construction of pond	IID	No action required in 2013.
84	Permittee will fund a study program to determine the impacts of selenium on pupfish. The objective of the study program will be to identify specific selenium thresholds at which pupfish survival or reproduction is adversely affected. The thresholds will be expressed in terms of tissue concentration, water concentration or dietary concentration as appropriate. In addition to evaluating effects of selenium on pupfish, the study program also may investigate the appropriateness of	Permit	Within 7 years of issuance of Permit (i.e., 2011).	IID	The USGS - Columbia Environmental Research Center completed the desert pupfish selenium dosing study in 2010. See Section 2.3.7 Desert Pupfish Conservation Strategy

	Mitigation Measure	Source	Implementation Schedule	Responsible Party	Status / Date
	using another fish species (e.g., sailfin mollies) as a surrogate species for desert pupfish. Sufficient funding will be provided to support completion of the study program and identification of a selenium threshold within 7 years of issuance of Permit. A detailed study plan will be developed in cooperation with the Department and Service within 6 months of Permit issuance.				
85	Concurrently with Condition of Approval 4(j)(vi), Permittee will implement a monitoring program to establish baseline conditions in drains in the Imperial Valley that discharge directly to the Sea. The monitoring program will include selenium concentrations in water, sediment, and dietary components of desert pupfish. If the study program includes investigation of possible surrogate species, collections of the surrogate species will be made to determine tissue concentrations of selenium. In addition, pupfish presence will be monitored (see Condition of Approval 4(j)(ix)). A detailed monitoring plan will be developed in cooperation with the Department and Service within 6 months of Permit issuance.	Permit	Within 7 years of issuance of Permit (i.e., 2011).	IID	USGS – Western Fisheries Research Center (Dixon Duty Station) completed the field work for the four-year agriculture drain study in 2009. The study to evaluate the suitability of surrogate species for desert pupfish was completed in 2010 and results presented to the IT in 2010. See Section 2.3.7 Desert Pupfish Conservation .
86	Within 2 years of completion of the study program identified in Conditions of Approval 4(j)(vi and vii), Permittee will meet with the Department and Service to review the results of the study program and the monitoring data. Based on this review, if the available information indicates that pupfish inhabiting drains in Imperial Valley are at risk from selenium, Permittee will work with the Department and Service to determine the best means for managing IID's drain channels to minimize potential selenium impacts on pupfish. Measures to be considered may include splitting combined drain channels (drain/operational water) to improve water quality, providing limited biological treatment, including use of discharge from managed marsh mitigation habitat, and consolidating channels and blending flows. IID will implement the measures necessary to minimize potential selenium impacts on pupfish.	Permit	Within 2 years of completion of selenium studies.	IID; Department of Fish and Game	While the selenium studies had some limitations and were limited in their scope of their evaluation; no immediate issues from selenium concentrations were identified. In 2013 IID, the IT and the NCCP Science Advisory Committee began discussion on alternative mitigation measures for desert pupfish in IID drains ant the Salton Sea.
87	Permittee will carry out routine monitoring of pupfish presence to confirm continued presence in the drains and to develop information useful in adjusting management actions for this species. In cooperation with the Department and Service, Permittee will develop a survey protocol that is appropriate for determining pupfish presence in the drains. As part of the baseline-monitoring program, Permittee will monitor pupfish presence in each of the pupfish drains for five to seven consecutive years to establish patterns of use and to augment baseline information. Prior to development of a revised protocol, the existing protocol to survey desert pupfish will be used. If possible, the revised protocol and existing protocol will be calibrated. The need for continued monitoring of water quality, sediment, and dietary components and pupfish presence will be reassessed during the review at the end of the study and baseline survey program. If it is determined that continued monitoring is necessary, Permittee will work with the Department and Service to develop an appropriate long-term monitoring program.	Permit	During Permit term	IID	IID implemented the desert pupfish trapping protocol in 2011 and continued with the monitoring in 2018. See Section 2.3.7 Desert Pupfish Conservation Strategy.
88	Permittee shall monitor selenium concentrations in	Permit	During Permit	IID	The Managed Marsh AMP

	Mitigation Measure	Source	Implementation Schedule	Responsible Party	Status / Date
	the desert pupfish drains and created rail habitat to assure that unanticipated impacts resulting from selenium exposure are not likely to occur. This monitoring shall include regular sampling of water, sediments, prey items, and a surrogate fish species (where available) in the potential pupfish drains and water, sediments and prey items for the Yuma clapper rail in the created marsh. A monitoring plan shall be developed that meets the approval of the Service and Department. The monitoring programs described in paragraphs (ix) and (x) above shall be designed to be cost effective and to avoid duplication.		term		includes monitoring of selenium concentrations in rail habitat at the Managed marsh. With the completion of the USGS surrogate study, IID/IT are developing a selenium monitoring plan for pupfish drains. See Section 2.3.7 Desert Pupfish Conservation Strategy.
89	For construction activities (i.e., in-channel modifications) that directly affect pupfish drains, Permittee shall implement gradual dewatering of the construction sites within potential pupfish drains to allow desert pupfish to move out of the area such that they are not stranded by dewatering. A qualified biologist shall be present to relocate pupfish to a safe location if necessary to prevent stranding as a result of the physical structure of the drain. The biologist shall maintain a complete record of all desert pupfish moved from hazardous areas during project construction. At a minimum, the information shall include: location (written description and map), date and time of observation, along with details of the relocation site; basic life history information (i.e., length and sex); and general condition and health, including any apparent injuries/state of healing.	Permit	During Permit term, in association with construction that may affect pupfish drains.	IID	IID and the IT evaluated the logistical issues associated with dewatering of drains and determined that the measure is not a viable option in most cases. The IID and IT continue to evaluate additional O&M and construction methods that will reduce the chance of pupfish impacts. IID Environmental Specialists completed CDFW training and are qualified to relocate desert pupfish as required. See Section 2.3.7 Desert Pupfish Conservation Strategies
90	Permittee shall conduct experimental trials to identify silt removal techniques and seasonal timing that minimize the injury or mortality of desert pupfish that may be associated with removing silt from the connections as necessary to maintain suitable conditions for use by desert pupfish within 10 years of Permit issuance.	Permit	By 2014	IID	See Section 2.3.7 - Desert Pupfish Conservation Strategy IID continues to evaluate drain maintenance techniques.
91	Permittee shall provide for adequate water to maintain appropriate habitat conditions for survival and reproduction of desert pupfish in the desert pupfish refugium.	Permit	During Permit term, following construction of refugium.	IID	No action in 2013. Implementation of the refugium is on hold while CDFW evaluates potential Asian tapeworm issues in the Colorado River supply water.
92	Permittee shall provide for funds and personnel to implement management of the pupfish refugium. Such management shall be conducted manually with adequate frequency to eliminate the need for routine use of heavy equipment that could result in injury or mortality of the pupfish in the refugium. Should the use of heavy equipment in the refugium be required as a result of unanticipated circumstances, its use shall require the prior approval of the Service and Department.	Permit	During Permit term, in association with pupfish refugium.	IID	IID biologists and/or environmental specialists will manage the desert pupfish refugium. Construction of the refugium is completed, but implementation of the site has been delayed.
93	Permittee shall immediately notify the Service and Department regarding any needed emergency repairs on the pupfish connections, pupfish selenium management measures, rail created habitat, or pelican roost structures that may result in disturbance of or impacts to the listed species so that the Service	Permit	During Permit term	IID	No emergency repairs that would impact the noted species were conducted in 2013. See Section 2.3.3 Drain

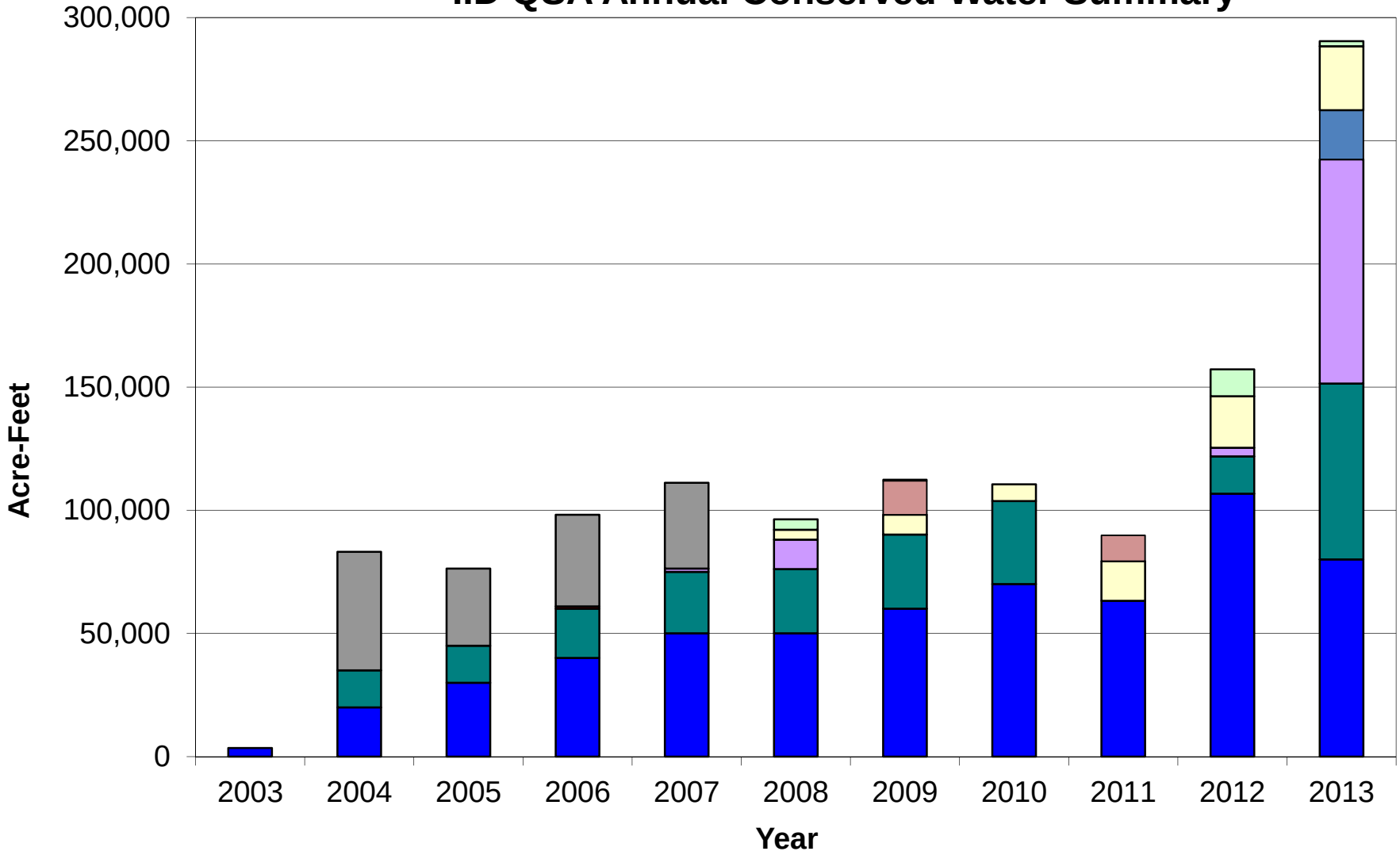
	Mitigation Measure	Source	Implementation Schedule	Responsible Party	Status / Date
	and Department can provide technical assistance to minimize the impacts associated with implementing the repairs.				habitat Conservation Strategy (2) Creation and Management of Managed Marsh Habitat.
94	Permittee shall use wire minnow traps for desert pupfish surveys, with or without bait, until superseded by a new Service and Department-approved protocol. Wire traps have proven to be more effective in comparison trials than other trap materials such as plastic, thus giving a more accurate evaluation of the status of the desert pupfish population.	Permit	During Permit term, in association with pupfish trapping.	IID	Sampling in the drains was conducted per USFWS and CDFW guidelines and survey specific protocols approved by the IT.
95	Permittee shall set minnow traps during daylight hours only and the traps will be checked for the presence of desert pupfish at least every three hours. There shall be no overnight trapping, as this has resulted in mortality of pupfish during low dissolved oxygen conditions that occur at night.	Permit	During Permit term, in association with pupfish trapping.	IID	See MM 94.
96	Permittee may handle desert pupfish in order to take length measurements to assess size and age class of individuals. Handling shall require minimal exposure out of water. Any pupfish exhibiting signs of physiological stress shall be released immediately at the point of capture to minimize the potential for injury associated with such stress.	Permit	During Permit term, in association with pupfish trapping.	IID	See MM 94.
97	IID will initiate a study to evaluate the potential effect of routine drain maintenance on pupfish occupying the drains and to determine the efficacy of modifying maintenance practices to avoid or minimize potential take. The specific requirements of the studies will be developed by the IT. In the event that the IT can determine, based on the findings of the evaluation, that modification of the maintenance practices would minimize impacts to pupfish, IID will modify its maintenance practices, if practicable. Modifications in drain maintenance practices could include the timing of sediment and vegetation removal, the direction in which the drains are cleaned (i.e., upstream or downstream), and the manner in which sediment is removed from the channel (e.g., one side only).	Permit	During Permit term	IID	In 2013, IID/IT continued evaluating mitigation measures to minimize impacts to desert pupfish. Drain cleaning in potential desert pupfish habitat areas is conducted from upstream to downstream to allow for an escape route for the fish. See Section 2.3.7 Desert Pupfish Conservation Strategy
98	IID will submit an annual report to the Department and Service that includes information developed or updated during the preceding year. The annual report will include the following types of information: • All information specified in the reporting requirements identified in the detailed pupfish monitoring plan developed by the IT. • Amount of pupfish drain habitat defined as the length (miles) of drain extending from the outlet to the Salton Sea upstream to the first check (to be reported every five years or less as determined by the IT). • Results of selenium baseline monitoring in the drains. • Results of selenium monitoring in drains modified by IID under Condition of Approval 4(j)(vii). • Results of pupfish monitoring in drains where IID modifies maintenance practices based on IT recommendations (Condition of Approval 4(j)(xii)). • Results of pupfish baseline monitoring (to be reported annually during years when surveys are conducted). Summary of the results of pupfish salvage efforts at construction sites, including date, location, number	Attachment 2	During Permit term, following drain pupfish surveys and related.	IID	All reports prepared by the USGS regarding the selenium toxicity study, agricultural drain study and surrogate species study have been provided to the IT. The Selenium Fate and Transport Study was submitted to the IT and the SWRCB in 2011/2012. The pupfish distribution study protocol includes provisions for data management and data sharing between the wildlife agencies, IID and CVWD. No desert pupfish salvage

	Mitigation Measure	Source	Implementation Schedule	Responsible Party	Status / Date
	and approximate age (e.g., adult or juvenile) of fish salvaged, number surviving transport and initial release, and release location. In addition to inclusion in the annual report, pupfish salvage information will be submitted to Department and Service within one week of salvaging the fish.				was required as a result of IID O&M activity in 2013.
99	IID will ensure that a person qualified to capture and handle razorback suckers and that meets the approval of the Department and Service will be present during the dewatering of main canals (All-American, Westside Main, East Highline, or Central Main) or reservoirs on these four canals. Any razorback suckers stranded in the affected portion of the canal will be salvaged. Salvaged fish will be transported to the Colorado River. The IT will develop a procedure for salvaging and returning fish to the Colorado River consistent with other procedures for handling razorback suckers.	Permit	During Permit term, in association with canal dewatering.	IID	In 2007, the IT approved a razorback sucker relocation protocol. The IT also identified IID biologists qualified to relocate fish (IID's Biocontrol Unit). No relocations were conducted in 2013. IID personnel will coordinate any relocation with CDFW and USFWS.
100	Permittee shall create or acquire, and protect the lands described in Conditions of Approval 4(f)(i),(ii),(iv), and (vii), 4(g)(i), 4(i)(vi) and 4(j)(iv) (Habitat Management Lands "HM Lands").	Permit	During Permit term or in perpetuity as required by permit	IID	IID currently owns the mitigation property.
101	Permittee shall transfer fee to the HM Lands or a conservation easement (substantially in the form of Attachment 6) over the HM Lands to the Department under terms approved by the Department's Office of the General Counsel. Alternatively, the transfer may be to another public entity or non-profit corporation approved by the Department under terms approved by the Department.	Permit	During Permit term	IID	The mitigation areas have not been transferred to CDFW.
102	Provide a recent preliminary title report, initial (Phase 1) hazardous materials survey report, and other necessary documents (see Attachment 7). All documents conveying the HM Lands and all conditions of title are subject to the approval of the Department, the Department of General Services and, if applicable, the Fish and Game Commission which approvals shall not be unreasonably withheld.	Permit	Following identification of HM lands.	IID	Preliminary title reports for the Managed Marsh area were prepared.
103	Provide for the initial protection and enhancement of the HM lands as described in this Permit and/or its attachments, or alternatively fund the Department's initial protection and enhancement of the lands by providing to the Department a check in the amount of $30,140,000 drawn from a banking institution located within California (transmittal of payment will be on the Mitigation Payment Transmittal Form, Attachment 8).	Permit	As determined by IID and DFG	IID	The JPA has funded the enhancement of the Managed Marsh and other mitigation measures on HM lands.
104	Reimburse the Department for reasonable expenses incurred during title and documentation review, expenses incurred from other state agency reviews and overhead related to transfer of HM Lands to the Department. The Department estimates that this Project will create an additional cost to the Department of no more than $3,000 for every fee title deed or easement processed.	Permit	During Permit term	IID	No JPA reimbursement in 2013.

APPENDIX 2

Colorado River Water and Salton Sea Mitigation Water Accounting
Corrected 4-2-14

IID QSA Annual Conserved Water Summary



- SDCWA Fallowing
- CVWD Fallowing
- SS Mitigation Fallowing
- ICS Fallowing
- IOPP Fallowing
- Exhibit C Fallowing
- SDCWA Efficiency
- CVWD Efficiency
- ICS Efficiency
- IOPP Efficiency
- Groundwater Storage

Notes:
1) 2004, 2005 and 2006 Exhibit C Fallowing include 9,339 AF of Colorado River Reregulation Conservation and storage and 1,375 AF reduction for loss agreement.
2) 2009 IOPP Efficiency includes 1,797 AF of unused fallowed water left in Colorado River System.
3) In 2011 and 2012, water created for ICS or IOPP purposes was used to reduce that years' overrun.

2013 IID Water Use

(All Values are Consumptive Use Volumes in Acre Feet at Imperial Dam)

	CONSUMPTIVE USE	FALLOWING	EFFICIENCY	SALTON SEA DELIVERY	LAKE MEAD DELIVERY	CVWD GROUNDWATER EXCHANGE
Misc PPR[1]	11,030					
1988 IID/MWD Transfer	105,000					
SDCWA Transfer	100,000	80,000	20,000			
CVWD Transfer	26,000		26,000			
SD Transfer Salton Sea Mitigation[2]	71,398	71,398		71,470	-72	
Inadvertent Overrun Payback	55,710	55,710				
Intentionally Created Surplus	0					
AAC Lining Project Transfer	67,700					
IID Water Use[3]	2,554,854					
LCWSP Wellfield Pumpage	5,510					
IID Additional Conserved Water & Storage[4]	37,347	35,295	2,052			
TOTAL	3,034,549	242,403	48,052			
IID QSA Entitlement	3,100,000					
Early Payback Applied to 2012 Overrun	37,347					
2013 Underrun	-65,451					

Notes:

1) 470 Misc PPR credit

2) Excess fallow and delivery of 1,398AF (1,470 AF adjusted for 2012 underdelivery of 72AF). See Salton Sea Mitigation Accounting for details.

3) USBR reported value as per Provisional Decree Accounting records dated 02/05/2014; included as part of IID's CU in lieu of an equivalent diversion.

4) 37,347 AF intended for early IOPP payback.

2012 IID Water Use

(All Values are Consumptive Use Volumes in Acre Feet at Imperial Dam)

	CONSUMPTIVE USE	FALLOWING	EFFICIENCY	SALTON SEA DELIVERY	LAKE MEAD DELIVERY	CVWD GROUNDWATER EXCHANGE
Misc PPR	11,500					
1988 IID/MWD Transfer[1]	104,140					
SDCWA Transfer[2]	106,722	106,722				
CVWD Transfer	21,000		21,000			
SD Transfer Salton Sea Mitigation[4]	15,182	15,182		15,110	72[3]	
Inadvertent Overrun Payback[5]	0				5,842	448
Intentionally Created Surplus	0					
AAC Lining Project Transfer	67,700					
IID Water Use[6]	2,903,216					
LCWSP Wellfield Pumpage	4,616					
IID Additional Conserved Water & Storage[7]	14,299	3,411	10,888			
TOTAL	3,248,375	125,315	31,888	15,110	5,914	448
IID QSA Entitlement	3,100,000					
Amount Exceeding Approved Water Order Reported by USBR	148,375					
2012 Planned ICS; Applied to 2012 Overrun	14,299	3,411	10,888			
2012 Overrun	134,076					
EOY Overrun Account Balance Reported by USBR[8]	134,076					

Notes:

1) Reduced as per Agreement due to reduction in number of required Tailwater Return Systems.

2) Due to the risk associated with QSA litigation, IID was able to create only 63,278 AF of the required 80,000 AF by fallowing in calendar year 2011. The balance of 16,722 AF of fallowed water, while under contract in the 2011-2012 Fallowing Program, was conserved in calendar year 2012. While IID considers the 16,722 AF to have been transferred by utilization of IID's IOPP right in calendar year 2011, to satisfy accounting deadlines, IID agreed to transfer 106,722 AF of conserved water instead of 90,000 AF in calendar year 2012; however IID reserves its position regarding the utilization of its IOPP right for transfer shortfalls.

3) In 2012, IID conserved 15,182 AF of Colorado River water for Salton Sea mitigation purposes, but delivered 15,110 AF to the Sea. This resulted in a 72 AF under-delivery. In 2013, IID will increase deliveries to the Salton Sea by 72 AF.

4) Remaining Salton Sea Mitigation balance of 19,879 AF from carryover of 2010 early mitigation water delivery - See SS Mitigation Accounting for details.

5) 5,842 AF from ICS and 448 AF from CVWD groundwater storage (see 2010 IID Water Use footnote 4) used as early IOPP payback for 2011 overrun - See IOPP Accounting and Provisional Lake Mead Accounting for details.

6) USBR reported value as per Provisional Decree Accounting records dated 02/13/2013; included as part of IID's CU in lieu of an equivalent diversion.

7) 14,299 AF created for IOPP purposes but due to policy limitations in overrun years, was used instead to reduce current year's overrun.

8) USBR reported overrun as per Final Decree Report records dated May 2013.

2011 IID Water Use

(All Values are Consumptive Use Volumes in Acre Feet at Imperial Dam)

	CONSUMPTIVE USE	FALLOWING	EFFICIENCY	SALTON SEA DELIVERY	LAKE MEAD DELIVERY
Misc PPR	11,500				
1988 IID/MWD Transfer[1]	103,940				
SDCWA Transfer[2]	63,278	63,278			
CVWD Transfer	16,000		16,000		
SD Transfer Salton Sea Mitigation[3]	0				
Inadvertent Overrun Payback	0				
Intentionally Created Surplus	0				
AAC Lining Project Transfer	67,700				
IID Water Use[4]	2,915,784				
LCWSP Wellfield Pumpage	4,460				
IID Additional Conserved Water & Storage[5]	10,528		10,528		
TOTAL	3,193,190	63,278	26,528	0	0
IID QSA Entitlement	3,100,000				
Amount Exceeding Approved Water Order Reported by USBR	93,190				
2011 Planned ICS; Applied to 2011 Overrun	10,528				
2011 Overrun	82,662				
EOY Overrun Account Balance Reported by USBR[6]	82,662				

Notes:

1) Reduced as per Agreement due to reduction in number of required Tailwater Return Systems.

2) Due to the risk associated with QSA litigation, IID was able to create only 63,278 AF of the required 80,000 AF by fallowing in calendar year 2011. The balance of 16,722 AF of fallowed water, while under contract in the 2011-2012 Fallowing Program, was conserved in calendar year 2012. While IID considers the 16,722 AF to have been transferred by utilization of IID's IOPP right in calendar year 2011, to satisfy accounting deadlines, IID agreed to transfer 106,722 AF of conserved water instead of 90,000 AF in calendar year 2012; however IID reserves its position regarding the utilization of its IOPP right for transfer shortfalls.

3) Salton Sea Mitigation obligation of 40,000 AF from carryover of previous years deliveries - See SS Mitigation Accounting for details.

4) USBR reported value as per final Decree Accounting records dated May 2012; included as part of IID's CU in lieu of an equivalent diversion.

5) 10,528 AF created for ICS purposes but due to policy limitations in overrun years, was used instead to reduce current year's overrun.

6) USBR reported overrun as per final Decree Accounting records dated May 2012. Does not include IID's 16,722 AF conservation shortfall for SDCWA, which was transferred by use of IOPP. USBR has not yet made a final determination regarding this issue.

2010 IID Water Use

(All Values are Consumptive Use Volumes in Acre Feet at Imperial Dam)

	CONSUMPTIVE USE	FALLOWING	EFFICIENCY	SALTON SEA DELIVERY	LAKE MEAD DELIVERY
Misc PPR	11,500				
88 Agreement	105,000				
San Diego Transfer	70,000	70,000			
Coachella Valley Water District	12,000		6,809[1]		
SD Transfer Salton Sea Mitigation	33,736	33,761		33,736[2]	25[3]
Inadvertent Overrun Payback	0				
Intentionally Created Surplus	0				
AAC Lining	67,700				
IID Water Users[4]	2,545,593				
IID Storage	46,546			46,546[5]	
TOTAL	2,892,075	103,761	6,809	80,282	25
IID Water Order	3,100,000				
Inadvertent Overrun Reported by USBR					
Underrun	207,925				

Notes:

1) IID was able to create only 6,809 AF of the required 12,000 AF by efficiency conservation due to Main Canals Seepage System pump outage problems; 5,191 AF delivered from IID's ICS account - See ICS Accounting.

2) Accounts for carryover Salton Sea Mitigation from previous years - See SS Accounting for Details.

3) Difference between 2009 SS mitigation delivery requirement and actual delivered and fallowed amount - See Mead Accounting for Details.

4) Reported IID C.U. from Colo. River by USBR (final decree accounting published May 2011), adjusted for 5,104 AF pumped from the LCWSP and includes 526 AF delivered to Coachella Canal heading for groundwater storage.

5) Storage in Salton Sea for 2011 and one half of 2012 mitigation obligation.

2009 IID Water Use

(All Values are Consumptive Use Volumes in Acre Feet at Imperial Dam)

	CONSUMPTIVE USE	FALLOWING	EFFICIENCY	SALTON SEA DELIVERY	LAKE MEAD DELIVERY
Misc PPR	11,126				
88 Agreement	105,000				
San Diego Transfer	60,000	60,000			
Coachella Valley Water District	8,000		8,000		
SD Transfer Salton Sea Mitigation	30,158	30,133		30,158	-25[1]
Inadvertent Overrun Payback	0				
Intentionally Created Surplus	12,000		13,797		12,000[2]
AAC Lining[3]	65,577				
IID Water Users (Reported by USBR)	2,566,713				
LCRWSP Wellfield Pumpage	3,684				
TOTAL	2,862,258	90,133	21,797	30,158	11,975
IID Water Order	3,100,000				
Inadvertent Overrun Reported by USBR	-				
Underrun Reported by USBR	237,767				

Notes: 1) Carried over to next year.

2) According to ICS policy, IID limited to 12,000 AF per year from seepage interception pumps-1,797 AF created by seepage interception unused and left in Colorado River system.

3) 2009 conservation yield for Reaches 1, 2, and 3 based on the Secretary of Interior's Oct. 27, 2009 Interim Determination and are 48,727 AF, 14,700 AF and 2,150 AF respectively.

2008 IID Water Use

(All Values are Consumptive Use Volumes in Acre Feet at Imperial Dam)

	CONSUMPTIVE USE	FALLOWING	EFFICIENCY	SALTON SEA DELIVERY	LAKE MEAD DELIVERY
Misc PPR	11,500				
88 Agreement	105,000				
San Diego Transfer	50,000	50,000			
Coachella Valley Water District	4,000		4,000		
SD Transfer Salton Sea Mitigation	26,085	26,085		26,085	
Inadvertent Overrun Payback	16,197	11,965	4,232		16,197
Intentionally Created Surplus	0				
AAC Lining	8,898				
IID Water Users (Reported by USBR)	2,825,116				
LCRWSP Wellfield Pumpage	7,350				
MWD diversion of IID early payback per settlement	-2,145				
TOTAL	3,052,001	88,050	8,232	26,085	16,176
IID Water Order	3,100,000				
Inadvertent Overrun Reported by USBR	-				
Underrun Reported by USBR	47,999				

Notes:

2007 IID Water Use

(All Values are Consumptive Use Volumes in Acre Feet at Imperial Dam)

	CONSUMPTIVE USE	FALLOWING	EFFICIENCY	SALTON SEA DELIVERY	LAKE MEAD DELIVERY
Misc PPR	11,500				
88 Agreement	105,000				
San Diego Transfer	50,000	50,000			
SD Transfer Salton Sea Mitigation	25,021	25,021		23,306	2,356[1]
CRWDA Exhibit C Payback	18,900	18,900			18,900
Early CRWDA Exhibit C Payback	15,931	15,931			15,931
Intentionally Created Surplus	0				
Inadvertent Overrun Payback	1,263	1,263			1,263
IID CU (Reported by USBR)	2,872,754				
LCRWSP Wellfield Pumpage	5,989				
TOTAL	3,106,358	111,115	0	23,306	38,450
IID Water Order	3,100,000				
Inadvertent Overrun Reported by USBR	6,358				
Underrun Reported by USBR	-				

Notes: 1) 1,715 AF from fallowing and 641 AF credit from 2004 - See Lake Mead Accounting

2006 IID Water Use

(All Values are Consumptive Use Volumes in Acre Feet at Imperial Dam)

	CONSUMPTIVE USE	FALLOWING	EFFICIENCY	SALTON SEA DELIVERY	LAKE MEAD DELIVERY
Misc PPR	11,500				
88 Agreement	101,160				
San Diego Transfer	40,000	40,000			
SD Transfer Salton Sea Mitigation	20,000	20,000			20,000[1]
CRWDA Exhibit C Payback	18,900	18,900			18,900
Early CRWDA Exhibit C Payback	18,719	18,719			18,719
IOPP	0				1,000
ICS	1,000	1,000			0
IID CU (Reported by USBR)	2,909,680				
LCRWSP Wellfield Pumpage	1,412				
Adjustments (USBR 2003-2006 Canal Loss, II B (6), ICS)	-13,414				
TOTAL	3,108,957	98,619	0	0	58,619
IID Water Order	3,100,000				
Inadvertent Overrun Reported by USBR	8,957				
Underrun Reported by USBR	-				

Notes: 1) Restoration of 2004 and 2005 reregulation conservation to Colo. River from Salton Sea.

2005 IID Water Use

(All Values are Consumptive Use Volumes in Acre Feet at Imperial Dam)

	CONSUMPTIVE USE	FALLOWING	EFFICIENCY	SALTON SEA DELIVERY	LAKE MEAD DELIVERY
Misc PPR	11,500				
88 Agreement	101,940				
San Diego Transfer	30,000	30,000			
SD Transfer Salton Sea Mitigation	15,000	15,000			15,000[2]
CRWDA Exhibit C Payback	18,900	18,900			18,900
Early CRWDA Exhibit C Payback	7,305	7,305			7,305
IOPP	0				
Colo. River Reregulation Conservation & Storage in SS[1]				21,476	
IID CU (Reported by USBR)	2,756,846				
LCRWSP Wellfield Pumpage	1,036				
TOTAL	2,942,527	71,205	0	21,476	41,205
IID Water Order	3,100,000				
Inadvertent Overrun Reported by USBR	-				
Underrun Reported by USBR[3]	159,881				

Notes: 1) Per Agreement, IID is credited with 25% of Colo. River reregulation water stored in Salton Sea as a reduction to Exhibit C payback.

2) Restoration of 2004 reregulation conservation to Colo. River from Salton Sea.

3) Does not include canal loss adjustment per 2006 IID/USBR Agreement

2004 IID Water Use

(All Values are Consumptive Use Volumes in Acre Feet at Imperial Dam)

	CONSUMPTIVE USE	FALLOWING	EFFICIENCY	SALTON SEA DELIVERY	LAKE MEAD DELIVERY
Misc PPR	11,500				
88 Agreement	101,900				
San Diego Transfer	20,000	20,000			
SD Transfer Salton Sea Mitigation	15,000	15,000		14,359	641
CRWDA Exhibit C Payback	18,900	18,900			18,900
Early CRWDA Exhibit C Payback	25,881	25,881			25,881
IOPP					
Colo. River Reregulation Conservation & Storage in SS[1]				15,880	
IID CU (Reported by USBR)	2,743,909				
LCRWSP Wellfield Pumpage	1,259				
TOTAL	2,938,349	79,781	0	30,239	45,422
IID Water Order	3,100,000				
Inadvertent Overrun Reported by USBR	-				
Underrun Reported by USBR[2]	166,408				

Notes: 1) Per Agreement, IID is credited with 25% of Colo. River reregulation water stored in Salton Sea as a reduction to Exhibit C payback.

2) Does not include canal loss adjustment per 2006 IID/USBR Agreement.

2003 IID Water Use

(All Values are Consumptive Use Volumes in Acre Feet at Imperial Dam)

	CONSUMPTIVE USE	FALLOWING	EFFICIENCY	SALTON SEA DELIVERY	LAKE MEAD DELIVERY
Misc PPR	11,500				
88 Agreement	105,130				
San Diego Transfer	10,000	3,445			
SD Transfer Salton Sea Mitigation[2]	5,000				
CRWDA Exhibit C Payback	0				
Early CRWDA Exhibit C Payback	0				
IOPP					
IID CU (Reported by USBR)[1]	2,978,223				
LCRWSP Wellfield Pumpage	1,249				
TOTAL	3,111,102	3,445	0	0	0
IID Water Order	3,100,000				
Inadvertent Overrun Reported by USBR[2]	6,555				
Underrun Reported by USBR	-				

Note: 1) Does not include canal loss adjustment per 2006 IID/USBR Agreement.

2) Since the QSA was executed in October of 2003, IID was able to only fallow 3,445 AF and therefore had an inadvertent overrun of 6,555 AF which was used to satisfy IID's 10,000 AF obligation to SDCWA. The USBR waived payback for 2003 overruns for all Lower Basin contractors as the IOPP did not take effect until January 1, 2011.

SDCWA TRANSFER ACCOUNTING

(All Values are Consumptive Use Volumes in Acre Feet at Imperial Dam)

YEAR	OBLIGATION	ANNUAL VOLUMES[1]			ANNUAL OVER/UNDER OBLIGATION
		FALLOWING	EFFICIENCY	TOTAL VOLUME[2]	
2003[3]	10,000	3,445	0	3,445	-6,555
2004	20,000	20,000	0	20,000	0
2005	30,000	30,000	0	30,000	0
2006	40,000	40,000	0	40,000	0
2007	50,000	50,000	0	50,000	0
2008	50,000	50,000	0	50,000	0
2009	60,000	60,000	0	60,000	0
2010	70,000	70,000	0	70,000	0
2011[4]	80,000	63,278	0	63,278	-16,722
2012[4]	90,000	106,722	0	106,722	16,722
2013	100,000	80,000	20,000	100,000	0
2014	100,000				
2015	100,000				
2016	100,000				
2017	100,000				
TOTAL	1,000,000	573,445	20,000	593,445	

Notes:

1) From Applicable Year

2) Any difference in total volume compared to IID transfer obligation is satisfied by IID utilization of its IOPP right.

3) Since the QSA was executed in October of 2003, IID was only able to fallow 3,445 AF and therefore had an inadvertent overrun of 6,555 AF which was used to satisfy IID's 10,000 AF obligation to SDCWA. The USBR waived payback for 2003 overruns for all Lower Basin entities.

4) Due to the risk associated with QSA litigation, IID was able to create only 63,278 AF of the required 80,000 AF by fallowing in calendar year 2011. The balance of 16,722 AF of fallowed water, while under contract in the 2011-2012 Fallowing Program, was conserved in calendar year 2012. While IID considers the 16,722 AF to have been transferred by utilization of IID's IOPP right in calendar year 2011, to satisfy accounting deadlines, IID agreed to transfer 106,722 AF of conserved water instead of 90,000 AF in calendar year 2012; however IID reserves its position regarding the utilization of its IOPP right for transfer shortfalls.

CVWD TRANSFER ACCOUNTING

(All Values are Consumptive Use Volumes in Acre Feet at Imperial Dam)

YEAR	OBLIGATION	ANNUAL VOLUMES[1]			ANNUAL OVER/UNDER OBLIGATION
		FALLOWING	EFFICIENCY	TOTAL VOLUME[2]	
2003	0	0	0	0	0
2004	0	0	0	0	0
2005	0	0	0	0	0
2006	0	0	0	0	0
2007	0	0	0	0	0
2008	4,000	0	4,000	4,000	0
2009	8,000	0	8,000	8,000	0
2010	12,000	0	12,000[3]	12,000	0
2011	16,000	0	16,000	16,000	0
2012	21,000	0	21,000	21,000	0
2013	26,000	0	26,000	26,000	0
2014	31,000				
2015	36,000				
2016	41,000				
2017	45,000				
TOTAL	240,000	0	87,000	87,000	

Notes:

1) From Applicable Year.

2) Any difference in total volume compared to IID transfer obligation is satisfied by IID use of an IOPP overrun.

3) 6,809 AF created by Main Canal Seepage Interception Project and 5,191 AF delivered from IID's ICS account - See ICS Accounting.

SALTON SEA MITIGATION ACCOUNTING

(All Values are Consumptive Use Volumes in Acre Feet at Imperial Dam)

YEAR	OBLIGATION			DELIVERY TO SEA				INFLOW/OUTFLOW ACCOUNTING	
	FALLOW	FALLOW (revised)	ENTITLEMENT	ANNUAL VOLUMES[1]			REMAINING OBLIGATION BALANCE	ANNUAL OVER/UNDER OBLIGATION	RUNNING BALANCE IN SALTON SEA
				DELIVERY TO SEA	CR REREG CONSERVATION & STORAGE	TOTAL VOLUME			
2003[2]	5,000			0	0	0	730,182	-5,000	-5,000
2004	10,000			14,359	15,880	30,239	699,943	20,239	15,239
2005	15,000			0	21,476	21,476	678,467	6,476	21,715
2006	20,000			0	0	0	678,467	-20,000	1,715
2007	25,000			23,306	0	23,306	655,161	-1,694	21
2008	25,000			26,085	0	26,085	629,076	1,085	1,106
2009	30,000			30,158	0	30,158	598,918	158	1,264
2010[3]	35,000			80,282	0	80,282	518,636	45,282	46,546
2011[4]	~~40,000~~	0	26,667	0	0	0	518,636	-26,667	19,879
2012[5]	~~45,000~~	15,182	19,879	15,110	0	15,110	503,526	-19,951	-72
2013	~~70,000~~	71,398		71,470	0	71,470	432,056	72	0
2014	~~90,000~~	88,602							
2015	110,000								
2016	130,000								
2017	150,000								
TOTAL[6]	730,182		46,546	260,770	37,356	298,126			

Notes:

1) From Applicable Year

2) Since the QSA was executed in October of 2003, SWRCB approved the 2003 obligation being satisfied in 2004.

3) 46,521 AF of IID's entitlement water was delivered to the Salton Sea for storage as early mitigation water in 2010 for the scheduled obligations of 2011 and half of 2012.

4) IID delivered entitlement water to the Salton Sea in 2010 for storage to be used for future mitigation. When entitlement water is used to mitigate transferred water created by fallowing, the transferred volume is multiplied by 1/3 to determine the entitlement water mitigation volume (i.e., 80,000 AF x .33 = 26,667 AF).

5) 19,879 AF of entitlement water (see footnote 4) accounted for 66.3% of the 2012 Salton Sea obligation. The remaining 33.7% of the 2012 Salton Sea obligation totaled 15,182 AF from fallowing.

6) Due to use of entitlement water, adjustments have been made to the total obligation.

CRWDA EXHIBIT C ACCOUNTING

(All Values are Consumptive Use in Acre Feet at Imperial Dam)

YEAR	OBLIGATION	PAYBACK					EXHIBIT C DELIVERY DIFFERENCE (Early Payback)		ADJUSTED EXHIBIT C OBLIGATION
		ANNUAL VOLUMES[1]				REMAINING BALANCE	ANNUAL OVER/UNDER OBLIGATION	RUNNING BALANCE	
		FALLOWING	Adjustment for USBR/IID 2007 Canal Loss Compromise Agreement	CR REREG CONSERVATION & STORAGE[2]	TOTAL VOLUME				
2003	0	0		0	0	151,400	0	0	0
2004	18,900	44,781	-602	3,970	48,149	103,251	29,249	29,249	0
2005	18,900	26,205	-308	5,369	31,266	71,985	12,366	41,615	0
2006	18,900	37,619	-465	0	37,154	34,831	18,254	59,869	0
2007	18,900	34,831	0	0	34,831	0[3]	15,931	75,800	0
2008	18,900	0	0	0	0	0			0
2009	18,900	0	0	0	0	0			0
2010	19,000	0	0	0	0	0			0
2011	19,000	0	0	0	0	0			0
TOTAL	151,400	143,436	-1,375	9,339	151,400	0			

Notes:
1) From Applicable Year
2) Per Agreement, IID is credited with 25% of Colo. River reregulation water stored in Salton Sea as a reduction to Exhibit C payback.
3) Total obligation of 151,400 AF completed four years early in 2007.

CVWD Groundwater Storage

(All Values are in Consumptive Use in Acre Feet at Imperial Dam)

Year	IID Water Delivered to CVWD MP 0.2 Turnout (AF)	5% Canal Conveyance Losses (AF)	5% Storage Losses (AF)	Amount Withdrawn	Net IID Water Stored as of Jan 1 following year (AF)
2003	0	0	0	0	0
2004	0	0	0	0	0
2005	0	0	0	0	0
2006	0	0	0	0	0
2007	0	0	0	0	0
2008	0	0	0	0	0
2009	0	0	0	0	0
2010	525	25	6	0	494
2011	0	0	25	0	469
2012	0	0	21	448	0
2013	0	0	0	0	0
2014					
2015					
2016					
2017					
TOTAL	525	25	52	448	

Notes:

IOPP ACCOUNTING

(All Values are in Consumptive Use in Acre Feet at Imperial Dam)

Cal. Yr.	Inadvertent Overrun	Other Applied to IOP	ICS Applied to IOP	Fallowed Amount Applied to IOP	System Efficiency Applied to IOP	Cumulative Remaining Inadvertent Overrun Balance	Amount Delivered to Storage	Cumulative Overrun Amount Carried Forward in System
2003								
2004								
2005								
2006	18,914	8,957[1]	1,000			8,957	0	8,957
2007	6,358	0	0	1,263	0	14,052	0	14,052
2008	0	0	0	11,965	4,232	-2,145[2]	0	0
2009	0	0	0	0	0	0	0	0
2010	5,191[3]	0	5,191	0	0	0	0	0
2011[4]	82,662	0	0	0	0	82,662	0	82,662
2012[5]	134,076	448	5,842	0	0	210,448	0	210,448
2013	0	0	0	91,005	2,052	117,391	0	117,391
2014								
2015								
2016								
2017								
TOTAL	247,201	9,405	12,033	104,233	6,284		0	

Notes:

1) II B (6) Applied to IOP

2) MWD diversion of IID early payback per settlement

3) IID was able to create only 6,809 AF of the required 12,000 AF by efficiency conservation due to Main Canals Seepage Interception Project pump outage problems; balance was delivered from IID's ICS account.

4) USBR reported overrun as 82,662 AF, which does not include the conservation shortfall of 16,722 AF that was delivered using the IOPP. USBR has not yet made a final determination regarding the final accounting of this issue.

5) 5,842 AF from ICS and 448 AF from CVWD groundwater storage (See 2010 IID Water Use footnote 4) applied as 2011 overrun early payback, reducing the balance to 76,372 AF (See IID's letter to USBR dated 12/27/2012).

ICS ACCOUNTING

(All Values are in Consumptive Use in Acre Feet at Imperial Dam)

Cal. Yr.	Fallowed Amount to ICS	Seepage Interception to ICS	Other System Conservation to ICS	Other On-Farm Efficiency Conservation to ICS	Total to ICS	Lake Mead Introduction Loss for Mead (5%)	Total Adjusted to ICS	Amount Withdrawn	Annual Carry Over Loss (3%)	Year End Balance
2003										
2004										
2005										
2006[1]	1,000	0	0	0	1,000	0[1]	1,000	1,000	0	0
2007	0	0	0	0	0	0	0	0	0	0
2008	0	0	0	0	0	0	0	0	0	0
2009	0	13,797[2]	0	0	12,000	600	11,400	0	0	11,400
2010	0	0	0	0	0	0	0	5,191[3]	186	6,023
2011[4]	0	10,528	0	0	0	0	0	0	181	5,842
2012[5]	0	14,299	0	0	0	0	0	5,842[6]	0	0
2013	0	0	0	0	0	0	0	0	0	0
2014										
2015										
2016										
2017										
TOTAL	1,000	38,624			13,000					

Notes:

1) 2006 ICS was created for Demonstration ICS Program but used for early payback of Inadvertent Overrun. ICS Policy was adopted in December of 2007.

2) According to ICS policy, IID is limited to 12,000 AF per year from seepage interception pumps-1,797 AF created by seepage interception unused and left in Colorado River system.

3) Early IOPP payback of conserved water to CVWD.

4) 10,528 AF created for ICS purposes but due to policy limitations in overrun years was used instead to reduce current year's overrun.

5) 14,299 AF created for ICS purposes but due to policy limitations in overrun years was used instead to reduce current year's overrun.

6) Early IOPP payback for 2011 overrun - See IOPP Accounting.

PROVISIONAL LAKE MEAD ACCOUNTING

(All Values are Consumptive Use Volumes in Acre Feet at Imperial Dam)

YEAR	IOPP			ICS				SS MITIGATION		CR REREG CONSERVATION & STORAGE				TOTAL BALANCE
	Inadvertent Overrun	Payback	Balance	Created	Diverted	Losses	Balance	Remaining in Lake Mead	Balance	Payback	Diverted To SS	Over/Under	Balance	Annual
2003	0	0	0	0	0		0		0	0	0	0	0	0
2004	0	0	0	0	0	0	0	641	641	0	15,880	-15,880	-15,880	-15,239
2005	0	0	0	0	0	0	0	0	641	15,000	21,476	-6,476	-22,356	-21,715
2006	18,914	9,957[1]	-8,950	1,000	1,000	0	0	0	641	20,000	0	20,000	-2,356	-10,665
2007	6,358	1,263	-14,045	0	0	0	0	-641	0	2,356	0	2,356	0	-14,045
2008	0	16,197	2,145[2]	0	0	0	0	0	0	0	0	0	0	0
2009	0	0	1,797[3]	12,000	0	600	11,400	-25	-25	0	0	0	0	11,375
2010	5,191	5,191[4]	0	0	5,191	186	6,023	25	0	0	0	0	0	6,023
2011[5]	82,662	0	-82,662	0[6]	0	181	5,842	0	0	0	0	0	0	-76,820
2012	134,076	6,290	-210,448	0[7]	5,842	0	0	72	72	0	0	0	0	-210,376
2013	0	93,057	-117,391	0	0	0	0	-72	0	0	0	0	0	-117,391
2014														
2015														
2016														
2017														
TOTAL	247,201	131,955		13,000	12,033	967		0		37,356	37,356	0		

Notes:

1) Includes 1,000 AF from ICS and 8,957 AF from II (B) 6.

2) MWD diversion of IID early payback per agreement

3) Additional water created by efficiency conservation left in Colo. River System as early payback and lost to IID.

4) Early IOPP payback of conserved water to CVWD from ICS

5) USBR reported overrun as 82,662 AF, which does not include the conservation shortfall of 16,722 AF that was delivered using the IOPP. USBR has not yet made a final determination regarding the final accounting of this issue.

6) 10,528 AF created for ICS purposes but due to policy limitations in overrun years was used instead to reduce current year's overrun.

7) 14,299 AF created for ICS purposes but due to policy limitations in overrun years was used instead to reduce current year's overrun.

TOTAL FALLOWING

(All Values are Consumptive Use Volumes in Acre Feet at Imperial Dam)

	ANNUAL VOLUME	MONTHLY											
YEAR		**JAN**	**FEB**	**MAR**	**APR**	**MAY**	**JUN**	**JUL**	**AUG**	**SEP**	**OCT**	**NOV**	**DEC**
2003	3,445	0	0	0	0	0	0	0	0	0	0	0	3,445
2004	79,781	3,445	3,445	3,445	3,445	3,445	3,445	13,925	11,316	11,458	9,976	6,678	5,758
2005	71,205	3,040	3,197	7,815	8,350	8,865	8,262	10,085	9,218	6,873	2,911	1,860	729
2006	98,619	1,132	1,294	10,673	12,028	12,899	11,047	13,815	10,705	10,725	6,480	4,469	3,352
2007	111,115	2,620	6,004	8,693	13,504	16,266	13,428	13,629	12,317	9,235	6,427	3,913	5,079
2008	88,050	5,287	6,278	11,930	12,041	8,361	6,652	11,033	9,158	6,585	5,460	2,295	2,970
2009	90,133	2,479	4,286	8,124	9,323	7,206	4,720	14,050	11,900	10,065	7,613	5,713	4,654
2010	103,761	4,906	4,745	12,528	14,170	9,790	7,536	12,856	9,946	7,430	9,140	5,809	4,905
2011	63,278	2,008	3,996	7,924	12,783	10,901	9,679	3,971	3,405	3,885	1,538	1,925	1,263
2012	125,315	10,426	10,426	10,426	11,216	11,354	11,354	9,449	9,449	9,449	10,589	10,589	10,589
2013	242,403	19,328	19,437	19,438	19,461	19,807	20,734	20,436	20,928	20,740	20,739	20,678	20,677
2014													
2015													
2016													
2017													
TOTAL	1,077,105												

Notes:

Each year the monthly breakdown of the annual fallowed volume of water will be refined as time and resources permit.

2003-2004 monthly distribution was assumed to be equally distributed over 13 months (December 2003 through December 2004).

2005-2011 Monthly distribution computed using the previous 12 months (Jul-Dec and Jan-Jun) delivery history for the participating gates in each of the fallowing programs.

2012 and 2013 Monthly conservation determined by monthly proration.

SDCWA TRANSFER FALLOWING

(All Values are Consumptive Use Volumes in Acre Feet at Imperial Dam)

YEAR	ANNUAL QSA OBLIGATION	ANNUAL VOLUME	ANNUAL DIFFERENCE[2]	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
2003[1]	10,000	3,445	-6,555	0	0	0	0	0	0	0	0	0	0	0	3,445
2004	20,000	20,000	0	3,445	3,445	3,445	3,445	3,445	2,775	0	0	0	0	0	0
2005	30,000	30,000	0	3,040	3,197	7,815	8,350	7,598	0	0	0	0	0	0	0
2006	40,000	40,000	0	1,132	1,294	10,673	12,028	12,899	1,974	0	0	0	0	0	0
2007	50,000	50,000	0	2,620	6,004	8,693	13,504	16,266	2,913	0	0	0	0	0	0
2008	50,000	50,000	0	5,287	6,278	11,930	12,041	8,361	6,103	0	0	0	0	0	0
2009	60,000	60,000	0	2,479	4,286	8,124	9,323	7,206	4,720	14,050	9,812	0	0	0	0
2010	70,000	70,000	0	4,906	4,745	12,528	14,170	9,790	7,536	12,856	3,469	0	0	0	0
2011[3]	80,000	63,278	-16,722	2,008	3,996	7,924	12,783	10,901	9,679	3,971	3,405	3,885	1,538	1,925	1,263
2012[3]	90,000	106,722	16,722	10,426	10,426	10,426	11,216	11,354	11,354	9,449	9,449	9,449	10,589	2,585	0
2013	80,000	80,000	0	19,328	19,437	19,438	19,461	2,336	0	0	0	0	0	0	0
2014	60,000														
2015	40,000														
2016	20,000														
2017	0														
TOTAL	700,000	573,445													

Notes:

1) Since the QSA was executed in October of 2003, IID was able to only fallow 3,445 AF and therefore had an inadvertent overrun of 6,555 AF which was used to satisfy IID's 10,000 AF obligation to SDCWA. The USBR waived payback for 2003 overruns for all Lower Basin contractors as the IOPP did not take effect until January 1, 2011.

2) Any difference in total volume compared to IID transfer obligation is satisfied by IID use of an IOPP overrun.

3) Due to the risk associated with QSA litigation, IID was able to create only 63,278 AF of the required 80,000 AF by fallowing in calendar year 2011. The balance of 16,722 AF of fallowed water, while under contract in the 2011-2012 Fallowing Program, was conserved in calendar year 2012. While IID considers the 16,722 AF to have been transferred by utilization of IID's IOPP right in calendar year 2011, to satisfy accounting deadlines, IID agreed to transfer 106,722 AF of conserved water instead of 90,000 AF in calendar year 2012; however IID reserves its position regarding the utilization of its IOPP right for transfer shortfalls.

SALTON SEA MITIGATION FALLOWING

(All Values are Consumptive Use Volumes in Acre Feet at Imperial Dam)

YEAR	ANNUAL OBLIGATION	ANNUAL VOLUME	ANNUAL DIFFERENCE	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
2003[1]	5,000	0	-5,000	0	0	0	0	0	0	0	0	0	0	0	0
2004	10,000	15,000	5,000	0	0	0	0	0	670	13,925	405	0	0	0	0
2005	15,000	15,000	0	0	0	0	0	1,267	8,262	5,471	0	0	0	0	0
2006	20,000	20,000	0	0	0	0	0	0	9,073	10,927	0	0	0	0	0
2007	25,000	25,021	21	0	0	0	0	0	10,515	13,629	877	0	0	0	0
2008	25,000	26,085	1,085	0	0	0	0	0	549	11,033	9,158	5,345	0	0	0
2009	30,000	30,133	133	0	0	0	0	0	0	0	2,088	10,065	7,613	5,713	4,654
2010	35,000	33,761	-1,239	0	0	0	0	0	0	0	6,477	7,430	9,140	5,809	4,905
2011[2]	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2012[2]	15,182	15,182	0	0	0	0	0	0	0	0	0	0	0	8,004	7,178
2013	70,000	71,398	1,398	0.0	0.0	0.0	0.0	17,471	20,734	20,436	11,359	0	0	0	1,398
2014	90,000														
2015	110,000														
2016	130,000														
2017	150,000														
TOTAL	730,182	251,580													

Notes:
1) Since the QSA was executed in October of 2003, SWRCB approved the 2003 obligation being satisfied in 2004.
2) Difference made up from used entitlement water sent to Sea in 2010 - See SS Mitigation Accounting. Final accounting of this obligation is under dispute.

CRWDA EXHIBIT C FALLOWING

(All Values are Consumptive Use Volumes in Acre Feet at Imperial Dam)

YEAR	ANNUAL OBLIGATION	ADJUSTED ANNUAL OBLIGATION[1]	ANNUAL VOLUME	ANNUAL DIFFERENCE	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
2003	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2004	18,900	18,900	18,900	0	0	0	0	0	0	0	0	10,911	7,989	0	0	0
2005	18,900	18,900	18,900	0	0	0	0	0	0	0	4,614	9,218	5,068	0	0	0
2006	18,900	18,900	18,900	0	0	0	0	0	0	0	2,888	10,705	5,307	0	0	0
2007	18,900	18,900	18,900	0	0	0	0	0	0	0	0	11,440	7,460	0	0	0
2008	18,900	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2009	18,900	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2010	19,000	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2011	19,000	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL	151,400	75,600	75,600													

Notes: 1) Annual obligation adjusted based on early CRWDA Exhibit C paybacks (See Early Exhibit C Table) and credit of 25% of Colo. River reregulation water stored in Salton Sea.

IOPP FALLOWING

(All Values are Consumptive Use Volumes in Acre Feet at Imperial Dam)

YEAR	ANNUAL VOLUME	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
2003	0	0	0	0	0	0	0	0	0	0	0	0	0
2004	0	0	0	0	0	0	0	0	0	0	0	0	0
2005	0	0	0	0	0	0	0	0	0	0	0	0	0
2006	0	0	0	0	0	0	0	0	0	0	0	0	0
2007	1,263	0	0	0	0	0	0	0	0	1,263	0	0	0
2008	11,965	0	0	0	0	0	0	0	0	1,240	5,460	2,295	2,970
2009	0	0	0	0	0	0	0	0	0	0	0	0	0
2010	0	0	0	0	0	0	0	0	0	0	0	0	0
2011	0	0	0	0	0	0	0	0	0	0	0	0	0
2012	3,411[1]	0	0	0	0	0	0	0	0	0	0	0	3,411
2013	91,005[2]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	9,569	20,740	20,739	20,678	19,279
2014	0												
2015	0												
2016	0												
2017	0												
TOTAL	107,644												

Notes:
1) 3,411 AF created for early 2011 IOPP payback, but due to policy limitations in overrun years, was used instead to reduce current year's overrun.
2) 55,710 AF meets IID's 2011 IOPP Payback obligation. Additional 35,295 AF created for early 2011 and 2012 IOPP Payback Obligations.

EARLY CRWDA EXHIBIT C FALLOWING

(All Values are Consumptive Use Volumes in Acre Feet at Imperial Dam)

YEAR	ANNUAL VOLUME	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
2003	0	0	0	0	0	0	0	0	0	0	0	0	0
2004	25,881	0	0	0	0	0	0	0	0	3,469	9,976	6,678	5,758
2005	7,305	0	0	0	0	0	0	0	0	1,805	2,911	1,860	729
2006	18,719	0	0	0	0	0	0	0	0	5,418	6,480	4,469	2,352
2007	15,931	0	0	0	0	0	0	0	0	512	6,427	3,913	5,079
2008	0	0	0	0	0	0	0	0	0	0	0	0	0
2009	0	0	0	0	0	0	0	0	0	0	0	0	0
2010	0	0	0	0	0	0	0	0	0	0	0	0	0
2011	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL	67,836												

Notes:

INTENTIONALLY CREATED SURPLUS BY FALLOWING

(All Values are Consumptive Use Volumes in Acre Feet at Imperial Dam)

YEAR	ANNUAL VOLUME	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
2003	0	0	0	0	0	0	0	0	0	0	0	0	0
2004	0	0	0	0	0	0	0	0	0	0	0	0	0
2005	0	0	0	0	0	0	0	0	0	0	0	0	0
2006	1,000	0	0	0	0	0	0	0	0	0	0	0	1,000
2007	0	0	0	0	0	0	0	0	0	0	0	0	0
2008	0	0	0	0	0	0	0	0	0	0	0	0	0
2009	0	0	0	0	0	0	0	0	0	0	0	0	0
2010	0	0	0	0	0	0	0	0	0	0	0	0	0
2011	0	0	0	0	0	0	0	0	0	0	0	0	0
2012	0	0	0	0	0	0	0	0	0	0	0	0	0
2013	0	0	0	0	0	0	0	0	0	0	0	0	0
2014													
2015													
2016													
2017													
TOTAL	1,000												

TOTAL EFFICIENCY CONSERVATION

(All Values are Consumptive Use Volumes in Acre Feet at Imperial Dam)

	Annual Volume	System Efficiency	On-Farm Efficiency	Monthly											
YEAR				**JAN**	**FEB**	**MAR**	**APR**	**MAY**	**JUN**	**JUL**	**AUG**	**SEP**	**OCT**	**NOV**	**DEC**
2003	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2004	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2005	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2006	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2007	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2008	8,232	7,651	581	0	141	524	697	811	805	906	868	856	1,022	854	748
2009	21,797	21,561	236	719	628	725	888	1,612	2,386	2,199	2,295	2,620	2,879	2,506	2,340
2010	6,809	6,809	0	2,021	671	0	0	0	0	0	0	0	33	1,709	2,375
2011	26,528	26,528	0	2,115	1,980	2,414	2,573	2,494	2,458	2,491	2,296	1,121	2,043	2,159	2,384
2012	31,888	31,888	0	2,363	2,172	2,645	2,752	2,718	2,852	2,931	2,940	2,563	2,860	2,777	2,315
2013	48,052	30,776	17,276	2,649	2,762	3,779	4,058	4,223	4,188	4,540	5,141	4,929	4,724	3,742	3,317
2014															
2015															
2016															
2017															
TOTAL	143,306	125,213	18,093												

SDCWA EFFICIENCY CONSERVATION

(All Values are Consumptive Use Volumes in Acre Feet at Imperial Dam)

YEAR	ANNUAL QSA OBLIGATION	ANNUAL VOLUME	ANNUAL DIFFERENCE	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
2003	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2004	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2005	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2006	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2007	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2008	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2009	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2010	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2011	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2012	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2013	20,000	20,000	0	2,649	2,762	3,779	4,058	4,223	2,529	0	0	0	0	0	0
2014	40,000														
2015	60,000														
2016	80,000														
2017	100,000														
TOTAL	300,000	20,000													

Notes: Efficiency conservation will be in accordance with QSA schedule.

CVWD EFFICIENCY CONSERVATION

(All Values are Consumptive Use Volumes in Acre Feet at Imperial Dam)

	ANNUAL QSA OBLIGATION[1]	ANNUAL VOLUME	ANNUAL DIFFERENCE	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
2003	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2004	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2005	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2006	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2007	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2008	4,000	4,000	0	0	141	524	697	811	805	906	116	0	0	0	0
2009	8,000	8,000	0	719	628	725	888	1,612	2,386	1,042	0	0	0	0	0
2010	12,000	6,809	-5,191[2]	2,021	671	0	0	0	0	0	0	0	33	1,709	2,375
2011	16,000	16,000	0	2,115	1,980	2,414	2,573	2,494	2,458	1,966	0	0	0	0	0
2012	21,000	21,000	0	2,363	2,172	2,645	2,752	2,718	2,852	2,931	2,567	0	0	0	0
2013	26,000	26,000	0	0	0	0	0	0	1,660	4,540	5,141	4,929	4,724	3,742	1,265
2014	31,000														
2015	36,000														
2016	41,000														
2017	45,000														
TOTAL	240,000	81,809													

Notes:

1) Efficiency conservation will be in accordance with QSA schedule.

2) IID was able to create only 6,809 AF of the required 12,000 AF by efficiency conservation due to Main Canals Seepage System pump outage problems; 5,191 AF delivered from IID's ICS account - See ICS Accounting.

IOPP EFFICIENCY

(All Values are Consumptive Use Volumes in Acre Feet at Imperial Dam)

YEAR	ANNUAL VOLUME	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
2003	0	0	0	0	0	0	0	0	0	0	0	0	0
2004	0	0	0	0	0	0	0	0	0	0	0	0	0
2005	0	0	0	0	0	0	0	0	0	0	0	0	0
2006	0	0	0	0	0	0	0	0	0	0	0	0	0
2007	0	0	0	0	0	0	0	0	0	0	0	0	0
2008	4,232	0	0	0	0	0	0	0	752	856	1,022	854	748
2009	0	0	0	0	0	0	0	0	0	0	0	0	0
2010	0	0	0	0	0	0	0	0	0	0	0	0	0
2011	10,528[1]	0	0	0	0	0	0	525	2,296	1,121	2,043	2,159	2,384
2012	10,888[2]	0	0	0	0	0	0	0	373	2,563	2,860	2,777	2,315
2013	2,052	0	0	0	0	0	0	0	0	0	0	0	2,052
2014	0												
2015	0												
2016	0												
2017	0												
TOTAL	27,700												

Notes:
1) 10,528 AF created for ICS purposes but due to policy limitations in overrun years, was used instead to reduce current year's overrun.
2) 10,888 AF created for early 2011 IOPP payback, but due to policy limitations in overrun years, was used instead to reduce current year's overrun.

ICS EFFICIENCY

(All Values are Consumptive Use Volumes in Acre Feet at Imperial Dam)

YEAR	ANNUAL VOLUME	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
2003	0	0	0	0	0	0	0	0	0	0	0	0	0
2004	0	0	0	0	0	0	0	0	0	0	0	0	0
2005	0	0	0	0	0	0	0	0	0	0	0	0	0
2006	0	0	0	0	0	0	0	0	0	0	0	0	0
2007	0	0	0	0	0	0	0	0	0	0	0	0	0
2008	0	0	0	0	0	0	0	0	0	0	0	0	0
2009	13,797[1]	0	0	0	0	0	0	1,157	2,295	2,620	2,879	2,506	2,340
2010	0	0	0	0	0	0	0	0	0	0	0	0	0
2011	0	0	0	0	0	0	0	0	0	0	0	0	0
2012	0	0	0	0	0	0	0	0	0	0	0	0	0
2013	0	0	0	0	0	0	0	0	0	0	0	0	0
2014	0												
2015	0												
2016	0												
2017	0												
TOTAL	13,797												

Notes: 1) According to ICS policy, IID is limited to 12,000 AF per year from seepage interception pumps-1,797 AF created by seepage interception unused and left in Colorado River system.

SDCWA DIVERSION AT PARKER DAM ACCOUNTING

(All Volumes in Acre Feet)

YEAR	IID ANNUAL TRANSFER OBLIGATION AT IMPERIAL DAM	MONTHLY												ANNUAL TOTAL[2]
		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	
2003	10,000												10,000	10,000[1]
2004	20,000	1,667	1,667	1,667	1,667	1,667	1,667	1,667	1,667	1,667	1,667	1,667	1,667	20,000
2005	30,000	2,500	2,500	2,500	2,500	2,500	2,500	2,500	2,500	2,500	2,500	2,500	2,500	30,000
2006	40,000	3,333	3,333	3,333	3,333	3,333	3,333	3,333	3,333	3,333	3,333	3,333	3,333	40,000
2007	50,000	4,167	4,167	4,167	4,167	4,167	4,167	4,167	4,167	4,167	4,167	4,167	4,167	50,000
2008	50,000	4,167	4,167	4,167	4,167	4,167	4,167	4,167	4,167	4,167	4,167	4,167	4,167	50,000
2009	60,000	5,000	5,000	5,000	5,000	5,000	5,000	5,000	5,000	5,000	5,000	5,000	5,000	60,000
2010	70,000	5,833	5,833	5,833	5,833	5,833	5,833	5,833	5,833	5,834	5,834	5,834	5,834	70,000
2011[3]	80,000	6,667	6,667	6,667	6,667	6,667	6,667	6,667	6,667	6,666	3,276	0	0	63,278
2012[3]	90,000	10,287	10,287	10,287	10,287	10,287	10,287	7,500	7,500	7,500	7,500	7,500	7,500	106,722
2013	100,000	8,333	8,333	8,333	8,333	8,333	8,333	8,333	8,333	8,334	8,334	8,334	8,334	100,000
2014	100,000													
2015	100,000													
2016	100,000													
2017	100,000													
TOTAL	1,000,000													600,000

Notes:

1) 3,445 from fallowing, 6,555 acre feet from inadvertent overrun.

2) Pursuant to Decree Accounting.

3) Due to the risk associated with QSA litigation, IID was able to create only 63,278 AF of the required 80,000 AF by fallowing in calendar year 2011. The balance of 16,722 AF of fallowed water, while under contract in the 2011-2012 Fallowing Program, was conserved in calendar year 2012. While IID considers the 16,722 AF to have been transferred by utilization of IID's IOPP right in calendar year 2011, to satisfy accounting deadlines, IID agreed to transfer 106,722 AF of conserved water instead of 90,000 AF in calendar year 2012; however IID reserves its position regarding the utilization of its IOPP right for transfer shortfalls.

CVWD DIVERSION AT IMPERIAL DAM ACCOUNTING

(All Volumes in Acre Feet)

YEAR	IID ANNUAL TRANSFER OBLIGATION AT IMPERIAL DAM	MONTHLY												ANNUAL TOTAL[2]
		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	
2003	0													0
2004	0													0
2005	0													0
2006	0													0
2007	0													0
2008	4,000	333	333	333	333	333	333	333	333	334	334	334	334	4,000
2009	8,000	667	667	666	667	667	666	667	667	666	667	666	667	8,000
2010	12,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	12,000
2011	16,000	1,333	1,333	1,333	1,333	1,333	1,333	1,333	1,333	1,333	1,333	1,333	1,333	16,000
2012	21,000	1,750	1,750	1,750	1,750	1,750	1,750	1,750	1,750	1,750	1,750	1,750	1,750	21,000
2013	26,000	2,166	2,166	2,166	2,166	2,167	2,167	2,167	2,167	2,167	2,167	2,167	2,167	26,000
2014	31,000													0
2015	36,000													0
2016	41,000													0
2017	45,000													0
TOTAL	240,000													87,000

Notes: 2) Pursuant to Decree Accounting.

APPENDIX 3

Agricultural Production Statistics

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IMPERIAL IRRIGATION DISTRICT
ANNUAL INVENTORY OF AREAS RECEIVING WATER
YEARS 2013, 2012, 2011

I CROP SURVEY

GARDEN CROPS	ACRES 2013	2012	2011
ALOE VERA	12	36	74
ARTICHOKE	49	67	98
BEANS		0	113
BLACKEYED PEAS	5	0	0
BROCCOLI	12,688	12,532	11,165
BROCCOLI (SEED)	748	157	352
BRUSSELS SPROUTS	52	138	0
CABBAGE	1,587	1,522	1,355
CABBAGE, CHINESE	135	196	171
CARROTS	13,698	12,230	11,932
CARROTS (SEED)	1	88	0
CAULIFLOWER	2,925	3,673	3,406
CELERY	549	875	783
CELERY (SEED)		0	157
CHINESE SPINACH		36	0
CILANTRO	283	560	745
COLLARDS		0	8
CORN, SWEET	8,571	7,629	8,274
CUCUMBERS	72	148	68
EGGPLANT		0	3
ENDIVE	107	548	127
FLOWERS	221	160	313
FLOWERS (SEED)	126	127	111
GARBANZO BEANS	140	27	0
GARLIC		0	155
HERBS, MIXED	207	163	167
HERBS, MIXED (SEED)		0	63
KALE	24	195	55
LETTUCE	11,218	13,625	12,393
LETTUCE, CHINESE		47	0
LETTUCE, GREEN	81	145	77
LETTUCE, MIXED	9,876	9,468	7,578
LETTUCE, RED	10	0	147
LETTUCE, ROMAINE	6,876	7,743	6,076
MELONS			
CANTALOUPES, FALL		0	126
CANTALOUPES, SPRING	5,763	4,623	6,192
HONEYDEW, SPRING	5	136	311
MIXED, FALL		68	68
MIXED, SPRING	462	547	425
WATERMELONS	716	862	1,016
MUSTARD		857	832
MUSTARD (SEED)		0	0
OKRA	265	499	332
ONIONS (DEHY)	4,484	4,713	
ONIONS (MARKET)	3,980	3,687	8,280
ONIONS (SEED)	1,415	1,918	1,872
PARSLEY		20	20
PEAS		0	5
PEPPERS, BELL	95	74	54
PEPPERS, HOT	14		
POTATOES	2,303	2,211	2,297
PUMPKINS		3	0
RADISHES	123	38	111
RAPINI	1,357	1,762	1,610
ROCKETT	276		
SPINACH	4,119	3,951	3,334
SQUASH	46	117	73
SQUASH (SEED)		0	37
SUNFLOWERS (SEED)	221	117	0
SWEET BASIL		72	265
SWISS CHARD	150	215	220
SWISS CHARD (SEED)		0	38
TOMATOES, SPRING	107	60	72
TURNIPS		7	104
VEGETABLES, MIXED	3,428	1,958	3,415
VEGETABLES, MIXED (SEED)	24	24	0
TOTAL GARDEN CROPS	**99,614**	**100,674**	**97,075**

FIELD CROPS	ACRES 2013	2012	2011
ALFALFA, FLAT	75,511	86,063	80,814
ALFALFA, ROW	31,393	43,582	33,615
ALFALFA (SEED)	29,987	25,710	19,057
BAMBOO	1	157	188
BARLEY	129	526	878
BERMUDAGRASS	30,709	31,268	31,564
BERMUDAGRASS (SEED)	20,473	20,846	21,043
CORN, FIELD	3,461	2,947	1,111
CORN, SILAGE	58	15	15
COTTON		0	2,293
FLAX	41	4	5
GRASS, MIXED	323	235	263
KLEINGRASS	16,790	14,778	13,614
OATS	4,959	2,565	2,033
RAPESEED	617	108	84
RED BEETS	159		
RYEGRASS	2,000	3,690	2,619
SAFFLOWER	391	273	35
SESBANIA	724	1,907	724
SORGHUM GRAIN	165	174	252
SORGHUM SILAGE	290	343	1,683
SOY BEANS	40	36	0
SPIRULINA ALGAE	87	87	48
SUDANGRASS	48,935	63,127	63,785
SUDANGRASS (SEED)	818	1,330	822
SUGARBEETS	26,008	25,222	25,534
SUGARCANE	324	271	340
TRITICALE GRAIN		0	0
WHEAT	41,652	89,866	74,476
TOTAL FIELD CROPS	**336,045**	**415,130**	**376,895**

PERMANENT CROPS	ACRES 2013	2012	2011
ASPARAGUS	30	58	68
CITRUS			
GRAPEFRUIT	669	653	287
LEMONS	1,720	1,749	1,467
LIMES	21	21	0
MIXED	4,518	4,596	5,295
ORANGES	342	266	157
TANGERINES	173	525	583
DATES	820	736	766
DUCK PONDS	10,237	10,364	10,681
EUCALYPTUS	8	8	9
FIGS	150	150	150
FISH FARMS	655	938	1,057
FRUIT, MIXED	7	5	4
GUAVA		0	22
JUJUBE	51	34	16
MANGOS		150	150
NURSERY	28	37	32
OLIVES	200	105	98
ORNAMENTAL TREES	33	38	48
PALMS	231	232	235
PASTURE, PERMANENT	546	552	642
PEACHES		0	3
PECANS	6	10	10
POMEGRANATES	67	67	71
TOTAL PERMANENT CROPS	**20,512**	**21,294**	**21,851**
TOTAL ACRES OF CROPS	**456,171**	**537,098**	**495,821**

Note: Crops are listed for the year in which they are predominately harvested.

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II ACCOUNT SUMMARY

	2013		2012		2011	
Number of Farm Accounts	5,853		5,853		5,912	
Number of Owner-Operated Farm Accounts	2,362	40.4%	2,362	40.4%	2,344	39.6%
Number of Tenant-Operated Farm Accounts	3,491	59.6%	3,491	59.6%	3,568	60.4%
Average Acreage of Farm Account	80.87		80.87		80.21	

III SUMMARY OF AREA SERVED

	2013	2012	2011
Field Crops	336,045	415,130	376,895
Garden Crops	99,614	100,674	97,075
Permanent Crops	20,512	21,294	21,851
TOTAL ACRES OF CROPS	**456,171**	**537,098**	**495,821**
Total Multiple Cropped Acres	38,600	104,587	55,257
TOTAL NET ACRES IN CROPS	**417,571**	**432,511**	**440,564**
Area Being Reclaimed: Leached	97	44	86
NET AREA IRRIGATED	**417,668**	**432,555**	**440,650**
IID Fallowing Program (12 Month Avg)	36,750	20,090	11,224
Area Farmable But Not Farmed During Year (Fallowed Land)	18,893	20,666	22,332
TOTAL AREA FARMABLE	**473,311**	**473,311**	**474,206**
Area Of Farms In Homes, Feed Lots, Corrals, Cotton Gins, Experimental Farms, Solar and Industrial Areas	16,526	16,526	16,088
Area In Cities, Towns, Airports, Cemeteries, Fairgrounds, Managed Marsh, Golf Courses, Recreational, Parks, Lakes and Rural Schools	30,470	30,470	30,013
TOTAL AREA RECEIVING WATER	**520,307**	**520,307**	**520,307**
Area In Drains, Canals, Reservoirs, Rivers, Railroads, and Roads	74,742	74,742	74,742
Area Below -230 Salton Sea Reserve Boundary & Area Covered By Salton Sea, Less Area Receiving Water	40,150	40,150	40,150
Area in Imperial Unit Not Entitled To Water	63,893	63,893	63,893
Undeveloped Area Of Imperial, West Mesa, East Mesa, and Pilot Knob Units	277,629	277,629	277,629
TOTAL ACREAGE INCLUDED - ALL UNITS	**976,721**	**976,721**	**976,721**
Acreage Not Included - All Units *	84,916	84,916	84,916
TOTAL GROSS ACREAGE WITHIN DISTRICT BOUNDARIES	**1,061,637**	**1,061,637**	**1,061,637**

IMPERIAL IRRIGATION DISTRICT

Ismael Gomez
Interim Manager
Water Department

* Acreage within District boundaries that is not included in District.

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IMPERIAL IRRIGATION DISTRICT
ANNUAL INVENTORY OF AREAS RECEIVING WATER
YEARS 2012, 2011, 2010

I CROP SURVEY

GARDEN CROPS	ACRES 2012	2011	2010
ALOE VERA	36	74	75
ARTICHOKE	67	98	19
BEANS	0	113	59
BLACKEYED PEAS	0	0	195
BROCCOLI	12,532	11,165	11,072
BROCCOLI (SEED)	157	352	140
BRUSSELS SPROUTS	138	0	0
CABBAGE	1,522	1,355	1,147
CABBAGE, CHINESE	196	171	278
CARROTS	12,230	11,932	12,503
CARROTS (SEED)	88	0	0
CAULIFLOWER	3,673	3,406	2,455
CELERY	875	783	639
CELERY (SEED)	0	157	130
CHINESE SPINACH	36	0	0
CILANTRO	560	745	558
COLLARDS	0	8	4
CORN, SWEET	7,629	8,274	8,800
CUCUMBERS	148	68	0
EGGPLANT	0	3	11
ENDIVE	548	127	0
FLOWERS	160	313	169
FLOWERS (SEED)	127	111	0
GARBANZO BEANS	27	0	126
GARLIC	0	155	0
HERBS, MIXED	163	167	114
HERBS, MIXED (SEED)	0	63	10
KALE	195	55	54
LETTUCE	13,625	12,393	13,046
LETTUCE, CHINESE	47	0	0
LETTUCE, GREEN	145	77	136
LETTUCE, MIXED	9,468	7,578	8,903
LETTUCE, RED	0	147	68
LETTUCE, ROMAINE	7,743	6,076	5,031
MELONS			
CANTALOUPES, FALL	0	126	88
CANTALOUPES, SPRING	4,623	6,192	6,626
HONEYDEW, SPRING	136	311	65
MIXED, FALL	68	68	56
MIXED, SPRING	547	425	675
WATERMELONS	862	1,016	1,171
MUSTARD	857	832	600
MUSTARD (SEED)	0	0	4
OKRA	499	332	610
ONIONS (DEHY)	4,713		
ONIONS (MARKET)	3,687	8,280	8,366
ONIONS (SEED)	1,918	1,872	1,535
PARSLEY	20	20	22
PEAS	0	5	6
PEPPERS, BELL	74	54	63
POTATOES	2,211	2,297	1,347
PUMPKINS	3	0	0
RADISHES	38	111	0
RAPINI	1,762	1,610	1,571
SPINACH	3,951	3,334	4,010
SQUASH	117	73	70
SQUASH (SEED)	0	37	0
SUNFLOWERS (SEED)	117	0	0
SWEET BASIL	72	265	138
SWISS CHARD	215	220	200
SWISS CHARD (SEED)	0	38	0
TOMATOES, SPRING	60	72	145
TURNIPS	7	104	63
VEGETABLES, MIXED	1,958	3,415	2,406
VEGETABLES, MIXED (SEED)	24	0	0
TOTAL GARDEN CROPS	**100,674**	**97,075**	**95,579**

FIELD CROPS	ACRES 2012	2011	2010
ALFALFA, FLAT	86,063	80,814	82,708
ALFALFA, ROW	43,582	33,615	34,298
ALFALFA (SEED)	25,710	19,057	23,269
BAMBOO	157	188	192
BARLEY	526	878	95
BERMUDAGRASS	31,268	31,564	28,132
BERMUDAGRASS (SEED)	20,846	21,043	25,968
CORN, FIELD	2,947	1,111	1,266
CORN, SILAGE	15	15	17
COTTON	0	2,293	437
FLAX	4	5	0
GRASS, MIXED	235	263	338
KLEINGRASS	14,778	13,614	12,415
OATS	2,565	2,033	1,491
RAPESEED	108	84	169
RYEGRASS	3,690	2,619	2,342
SAFFLOWER	273	35	436
SESBANIA	1,907	724	944
SORGHUM GRAIN	174	252	650
SORGHUM SILAGE	343	1,683	304
SOY BEANS	36	0	0
SPIRULINA ALGAE	87	48	28
SUDANGRASS	63,127	63,785	52,807
SUDANGRASS (SEED)	1,330	822	310
SUGARBEETS	25,222	25,534	25,188
SUGARCANE	271	340	594
TRITICALE GRAIN	0	0	104
WHEAT	89,866	74,476	57,464
TOTAL FIELD CROPS	**415,130**	**376,895**	**351,966**

PERMANENT CROPS	ACRES 2012	2011	2010
ASPARAGUS	58	68	98
CITRUS			
GRAPEFRUIT	653	287	468
LEMONS	1,749	1,467	1,596
LIMES	21	0	0
MIXED	4,596	5,295	4,468
ORANGES	266	157	198
TANGERINES	525	583	605
DATES	736	766	846
DUCK PONDS	10,364	10,681	10,307
EUCALYPTUS	8	9	9
FIGS	150	150	150
FISH FARMS	938	1,057	1,161
FRUIT, MIXED	5	4	4
GUAVA	0	22	25
JUJUBE	34	16	0
MANGOS	150	150	150
NURSERY	37	32	53
OLIVES	105	98	0
ORNAMENTAL TREES	38	48	32
PALMS	232	235	214
PASTURE, PERMANENT	552	642	574
PEACHES	0	3	23
PECANS	10	10	0
POMEGRANATES	67	71	10
TOTAL PERMANENT CROPS	**21,294**	**21,851**	**20,991**
TOTAL ACRES OF CROPS	**537,098**	**495,821**	**468,536**

Note: Crops are listed for the year in which they are predominately harvested.

II ACCOUNT SUMMARY

	2012		2011		2010	
Number of Farm Accounts	5,853		5,912		6,101	
Number of Owner-Operated Farm Accounts	2,362	40.4%	2,344	39.6%	2,412	39.5%
Number of Tenant-Operated Farm Accounts	3,491	59.6%	3,568	60.4%	3,689	60.5%
Average Acreage of Farm Account	80.87		80.21		77.72	

III SUMMARY OF AREA SERVED

	2012	2011	2010
Field Crops	415,130	376,895	351,966
Garden Crops	100,674	97,075	95,579
Permanent Crops	21,294	21,851	20,991
TOTAL ACRES OF CROPS	**537,098**	**495,821**	**468,536**
Total Multiple Cropped Acres	104,587	55,257	36,898
TOTAL NET ACRES IN CROPS	**432,511**	**440,564**	**431,638**
Area Being Reclaimed: Leached	44	86	185
NET AREA IRRIGATED	**432,555**	**440,650**	**431,823**
IID Fallowing Program (12 Month Avg)	20,090	11,224	17,253
Area Farmable But Not Farmed During Year (Fallowed Land)	20,666	22,332	25,064
TOTAL AREA FARMABLE	**473,311**	**474,206**	**474,140**
Area Of Farms In Homes, Feed Lots, Corrals, Cotton Gins, Experimental Farms, Solar and Industrial Areas	16,526	16,088	16,139
Area In Cities, Towns, Airports, Cemeteries, Fairgrounds, Managed Marsh, Golf Courses, Recreational, Parks, Lakes and Rural Schools	30,470	30,013	29,995
TOTAL AREA RECEIVING WATER	**520,307**	**520,307**	**520,274**
Area In Drains, Canals, Reservoirs, Rivers, Railroads, and Roads	74,742	74,742	74,735
Area Below -230 Salton Sea Reserve Boundary & Area Covered By Salton Sea, Less Area Receiving Water	40,150	40,150	40,150
Area in Imperial Unit Not Entitled To Water	63,893	63,893	63,933
Undeveloped Area Of Imperial, West Mesa, East Mesa, and Pilot Knob Units	277,629	277,629	277,629
TOTAL ACREAGE INCLUDED - ALL UNITS	**976,721**	**976,721**	**976,721**
Acreage Not Included - All Units *	84,916	84,916	84,916
TOTAL GROSS ACREAGE WITHIN DISTRICT BOUNDARIES	**1,061,637**	**1,061,637**	**1,061,637**

IMPERIAL IRRIGATION DISTRICT

J. P. Silva
Manager
Water Department

* Acreage within District boundaries that is not included in District.

APPENDIX 4

Managed Marsh Avian Species - 2013

Avian Observations at Managed Marsh 2013

Observation Density Scale:	Low	Medium	High
	1 to 5	5 to 10	Over 10

	Jan 13	Feb 13	March 13	April 13	May 13	June 13	July 13	August 13	Sept 13	Oct 13	Nov 13	Dec 13
Diving Birds												
pied-billed grebe	x	x	x		x	x	x	x	x	x	x	x
horned grebe												
eared grebe					x							
Clark's grebe												
Western grebe						x					x	
common loon												
Wading Birds												
American bittern			x		x		x		x			
least bittern					x	x			x			
great blue heron	x	x	x	x	x	x	x	x	x	x	x	x
green heron				x	x	x	x	x				
black-crowned night-heron	x		x	x	x	x	x	x	x	x	x	x
great egret		x	x	x	x	x		x	x	x	x	x
snowy egret	x			x	x	x		x	x			x
cattle egret	x			x					x			
white-faced ibis	x	x		x		x					x	
Pelicans, Gulls, Terns, Skimmers												
American white pelican											x	
brown pelican												
double-crested cormorant		x	x		x							
ring-billed gull												
California gull											x	x
herring gull												
Bonaparte's gull												
unidentified white-headed gull												
Caspian tern						x	x					
Forster's tern	x	x	x	x	x	x				x	x	x
gull-billed tern												
common tern					x			x				x
black skimmer												
Waterfowl												
greater white-fronted goose												
Ross' goose												
snow goose												
Canada goose												
brant goose												
mallard	x	x	x	x		x						
blue-winged teal										x	x	x
cinnamon teal		x	x	x	x					x	x	x
unidentified teal												
green-winged teal	x	x	x		x	x	x	x	x			x
Northern shoveler	x	x	x									x
Northern pintail	x	x										
ring-necked duck	x		x									
ruddy duck	x	x	x	x	x		x	x			x	x
canvasback												
redhead	x	x		x								
surf scoter												
American widgeon		x										
gadwall		x										
unidentified duck												

	Jan 13	Feb 13	March 13	April 13	May 13	June 13	July 13	August 13	Sept 13	Oct 13	Nov 13	Dec 13
Scavenging Birds												
turkey vulture												
osprey												
white-tailed kite	x	x						x				
sharp-shinned hawk												
Cooper's hawk	x	x								x	x	x
Northern harrier	x	x	x	x	x	x	x	x		x	x	x
red-shouldered hawk												x
Swainson's hawk												
red-tailed hawk	x									x	x	
ferruginous hawk												
unidentified hawk												
American kestrel												
merlin												
prairie falcon												
peregrine falcon	x										x	
Waterbirds												
black rail												
clapper rail		x		x	x		x	x				x
Virginia rail						x	x					
unidentified rail												
sora												
common moorhen	x			x	x	x	x	x	x	x	x	x
American coot	x	x	x	x	x	x	x	x	x	x	x	x
sandhill crane												
Common & Game Birds												
Gambel's quail												
ring-necked pheasant												
greater roadrunner			x		x		x	x				
barn owl	x- pellet											
great horned owl												
burrowing owl			x	x	x	x	x		x			
lesser nighthawk												
Shore Birds												
black-bellied plover												
American golden plover												
mountain plover												
semi-palmated plover												
killdeer		x		x	x	x	x	x	x			
black-necked stilt				x	x	x	x					
American avocet										x		
lesser yellowlegs												
greater yellowlegs												
willet	x											
whimbrel												
long-billed curlew			x									
marbled godwit												
dunlin												
Western sandpiper												
least sandpiper												
spotted sandpiper												
unidentified sandpiper												
long-billed dowitcher				x								
common snipe												
Wilson's phalarope												
red-necked phalarope												

	Jan 13	Feb 13	March 13	April 13	May 13	June 13	July 13	August 13	Sept 13	Oct 13	Nov 13	Dec 13
Passerine												
rock pigeon												
Eurasian collared dove												
white-winged dove				x	x	x	x	x				
mourning dove			x	x	x	x		x		x		
common ground-dove												
Anna's hummingbird												
black-chinned hummingbird												
rufous hummingbird												
Allen's hummingbird												
unknown hummingbird												
belted kingfisher												
northern flicker										x		
black phoebe	x	x	x			x	x	x	x	x	x	x
Say's phoebe	x								x	x	x	x
vermillion flycatcher												
willow flycatcher					x							
Western kingbird			x	x			x					
loggerhead shrike	x				x	x	x	x	x	x	x	x
common raven												
horned lark												
Northern rough-winged swallow							x					
cliff swallow												
barn swallow						x	x	x				
tree swallow			x	x	x	x						
unidentified swallow		x				x						
verdin												
house wren												
marsh wren	x	x	x	x	x	x	x	x	x	x	x	x
rock wren												
Northern mockingbird												
European starling												
American pipit												
phainopepla												
cedar waxwing												
common yellowthroat												
yellow warbler												
Wilson's warbler				x	x							
yellow-rumped warbler	x		x			x						x
unidentified warbler												
summer tanager												
Western tanager				x								
black-headed grosbeak												
lazuli bunting				x								
Abert's towhee		x	x	x	x	x		x				
lark sparrow												
savannah sparrow									x	x	x	
white-crowned sparrow										x		x
unidentified sparrow		x										
red-winged blackbird	x	x	x	x	x	x	x	x	x	x	x	x
Western meadowlark	x	x			x		x	x	x	x		x
yellow-headed blackbird		x	x	x	x	x						
brown-headed cowbird				x		x						
Brewer's blackbird		x	x	x								
Bullock's oriole												
great-tailed grackle							x					
house finch			x									
American goldfinch												
house sparrow												
other birds:												

Observation Density Scale:	Low	Medium	High
	1 to 5	5 to 10	Over 10

Avian Species at Managed Marsh 2013

Incidential Observations by Al Kalin, Managed Marsh Consultant

Species	March	April	May	June	July	August	October
Diving Birds							
pied-billed grebe	x						
horned grebe							
eared grebe	x			x	x		
Clark's grebe	x						
Western grebe	x						x
common loon							
Wading Birds							
American bittern	x						
least bittern	x						
great blue heron	x						
green heron	x						
black-crowned night-heron	x						
great egret	x						
snowy egret	x						
cattle egret	x						
white-faced ibis	x						
Pelicans, Gulls, Terns, Skimmers							
American white pelican	x						
brown pelican							
double-crested cormorant	x						
ring-billed gull	x						
California gull							
herring gull							
Bonaparte's gull							
unidentified white-headed gull							
Caspian tern							
Forster's tern	x						
gull-billed tern	x						
common tern							
black tern						x	
royal tern	x						
black skimmer							
Waterfowl							
greater white-fronted goose							
Ross' goose							
snow goose							
Canada goose							
brant goose							
mallard	x	x					
blue-winged teal	x						
cinnamon teal	x	x	x				
unidentified teal							
green-winged teal	x	x		x			
Northern shoveler	x	x					x
Northern pintail	x						
ring-necked duck	x						
ruddy duck	x						
canvasback	x						
redhead	x	x					
surf scoter							
American widgeon	x	x					
gadwall	x	x					
lesser scaup	x	x					
bufflehead	x	x					
unidentified duck							

Species	March	April	May	June	July	August	October
Scavenging Birds							
turkey vulture	x						
osprey	x						
white-tailed kite	x						
sharp-shinned hawk							
Cooper's hawk	x						
Northern harrier	x						
red-shouldered hawk	x						
Swainson's hawk							
red-tailed hawk	x						
ferruginous hawk							
unidentified hawk							
American kestrel		x					
merlin							
prairie falcon							
peregrine falcon	x						
Waterbirds							
black rail							
clapper rail	x	x	x	x			
Virginia rail							
unidentified rail							
sora	x						
common moorhen	x						
American coot	x						
sandhill crane							
Common & Game Birds							
Gambel's quail	x						
ring-necked pheasant	x						
greater roadrunner	x						
barn owl	x						
great horned owl							
burrowing owl	x						
lesser nighthawk		x					
Shore Birds							
black-bellied plover							
American golden plover							
mountain plover							
semi-palmated plover							
killdeer	x						
black-necked stilt	x						
American avocet	x		x				
lesser yellowlegs	x						
greater yellowlegs							
willet							
whimbrel							
long-billed curlew	x						
marbled godwit							
dunlin							
Western sandpiper	x	x					
least sandpiper		x					
spotted sandpiper	x						
unidentified sandpiper							
long-billed dowitcher	x						
short-billed dowitcher	x						
Wilson's snipe	x						
common snipe							
Wilson's phalarope							
red-necked phalarope							

Species	March	April	May	June	July	August	October
Passerine							
rock pigeon							
Eurasian collared dove			x				
white-winged dove							
mourning dove	x		x				
common ground-dove							
Anna's hummingbird							
black-chinned hummingbird							
rufous hummingbird							
Allen's hummingbird							
unknown hummingbird							
belted kingfisher	x						x
northern flicker							
black phoebe	x						
Say's phoebe	x						
vermillion flycatcher							
willow flycatcher							
Western kingbird	x						
loggerhead shrike	x						
common raven	x						
horned lark							
Northern rough-winged swallow							
cliff swallow	x						
barn swallow							
tree swallow							
bank swallow	x						
unidentified swallow							
verdin							
house wren							
marsh wren	x						
rock wren							
Northern mockingbird		x					
European starling	x						
American pipit							
phainopepla							
cedar waxwing							
common yellowthroat	x						
yellow warbler			x			x	
Wilson's warbler		x	x				
yellow-rumped warbler	x						
Townsend's warbler			x				
unidentified warbler							
summer tanager							
Western tanager		x					
black-headed grosbeak		x				x	
lazuli bunting						x	
Abert's towhee		x				x	
lark sparrow							
savannah sparrow	x						
white-crowned sparrow	x						
song sparrow	x						
unidentified sparrow							
red-winged blackbird	x						
Western meadowlark	x						
yellow-headed blackbird	x						
brown-headed cowbird		x					
bronzed cowbird		x					
Brewer's blackbird	x						
Bullock's oriole							
great-tailed grackle	x						
house finch							
American goldfinch							
house sparrow							
hermit thrush		x					
other birds:							

APPENDIX 5

Monthly Operation Reports- Managed Marsh

TRIFOLIUM, INC.
P.O. BOX 1
WESTMORLAND, CA 92281

To: Bruce Wilcox - IID
Work Description
Managed Marsh

MANAGED MARSH

DATE	HRS	DESCRIPTION	HR Rate	TOTAL
1/2/2013	2.0	Check and adjust water level in cells Found signs of campfire P1-4 cell	42.50	85.00
1/3/2013	10.5	Check and adjust water level in cells/Irrigate East Buffer/West 3 lands/26 deg	42.50	446.25
1/4/2013	7.5	Check and adjust water level in cells/Irrigate East Buffer/West 3 lands/28 deg	42.50	318.75
1/5/2013	2.0	Check and adjust water level in cells/Bobcat on road between P1-5 &P1-6	42.50	85.00
1/7/2013	4.0	Check and adjust water level in cells/P3-1 valve frame is buckled/leaking	42.50	170.00
1/8/2013	2.0	Check and adjust water level in cells/IID Cleaned spoil in P1-1	42.50	85.00
1/9/2013	3.0	Check and adjust water level in cells/IID Cleaned spoil in P1-1	42.50	127.50
1/11/2013	5.0	Container Broken into/Called Sheriff/IID Cleaned spoil in P1-1/Didn't finish	42.50	212.50
1/12/2013	2.0	Check and adjust water level in cells/Camper with fire in P1-4 cross road	42.50	85.00
1/13/2013	2.0	Checked campfire/met with Bruce Wilcox/Gave him key to container lock	42.50	85.00
1/15/2013	2.0	Check and adjust water level in cells/ice on ponds/28 deg at sunrise	42.50	85.00
1/17/2013	2.0	Check and adjust water level in cells/P2-6 set board in front box to stop trash	42.50	85.00
1/18/2013	2.0	Check and adjust water level in cells/3 hunters in 2 pickups/took pictures	42.50	85.00
1/19/2013	2.0	Check and adjust water level in cells/P2-5 set board in front box to stop trash	42.50	85.00
1/20/2013	3.0	Check and adjust water level in cells/Cleaned all outlets	42.50	127.50
1/23/2013	2.0	Met with Bruce and Meter guy/P3-5 set board in front of box to stop trash	42.50	85.00
1/25/2013	0.0	1/2" Rain	42.50	-
1/26/2013	0.0	1/4" Rain	42.50	-
1/27/2013	2.0	Checked Marsh/Too mudy to use roads	42.50	85.00
1/28/2013	5.0	P-18 delivery water canceled/added boards to reduce flow/Measured all boxes	42.50	212.50
1/29/2013	2.0	Water seeping into road near "O" Drain	42.50	85.00
1/30/2013	4.5	Talked with Bruce/Stopped flow in all cells/Meter installed	42.50	191.25
1/31/2013	8.0	Supervised Backhoe cleaning south drain/Met with Sharon/David about meter	42.50	340.00
	74.5	TOTALS		3,166.25

Trifolium, Inc.
Managed Marsh Activities

February, 2013

Ponds are all receiving the correct amount of water.

Meters that were installed on P22 delivery and P3-2 cell valve show the same amounts of water at both locations. This means the zanjero was not measuring the delivery correctly. He has been off work with an injury for two months now but when he returns someone from the Northend Division will have to talk with him if the measurements are not right. If that happens I will speak to Mike Pacheco.

Greenwing teal numbers are starting to decrease while northern shoveler numbers are increasing. Osprey are starting to feed on the smaller fish in the open ponds.

Muskrats are starting to become active again.

Some of the dikes in P1 cells are showing muskrat damage more than other dikes. Might be beneficial to have the grader run his front tire along the edge of the ponds again to cave in the burrows and nesting chambers.

Still no word from Richard Diaz as to when he will return with a backhoe to clean the spoil still left in the northeast pond (P1-5)

Still no work from Richard Diaz when he will start hauling dirt to fill all the low spots on the dikes. I will send him an email asking for an update and copy you.

West buffer needs irrigating but borders have not been pulled up by Ed Hale.

White and yellow sweet clover, curly dock, and salt cedar are growing rapidly and need to be sprayed as soon as possible.

Starting to see some bull frogs sunning in the afternoon heat.

Most of the cattail fuz has quit blowing and old growth of cattails are collapsing.

Big question is should we stay within the allotted water for the three deliveries?

Can we pick up all water in excess of what we have ordered without being charged for it. There are no active accounts below P22 and water seems to always be going by which could just as easily be going into the marsh.

TRIFOLIUM, INC.
P.O. BOX 1
WESTMORLAND, CA 92281

To: Bruce Wilcox - IID
Work Description
Managed Marsh

MANAGED MARSH

DATE	HRS	DESCRIPTION	HR Rate	TOTAL
3/1/2013	2.0	Check and adjust water level in cells	44.00	88.00
3/2/2013	2.0	Check and adjust water level in cells/2 muskrats	44.00	88.00
3/4/2013	2.0	Check and adjust water level in cells/1 muskrat	44.00	88.00
3/5/2013	4.0	Check and adjust water level in cells/1 muskrat/Cinnamon Teal moving in	44.00	176.00
3/7/2013	5.0	Check and adjust water level in cells/Pull dirt fill stakes/Bull frogs emerging	44.00	220.00
3/8/2013	3.0	Check and adjust water level in cells/Finish pulling stakes	44.00	132.00
3/9/2013	3.0	Check and adjust water level in cells/P1-3&4 plugged/installed box barriers	44.00	132.00
3/10/2013	2.0	Check and adjust water level in cells/Cleared plugged boxes again	44.00	88.00
3/12/2013	3.0	Check and adjust water level in cells/Cut narrow drain box boards/clear plugs	44.00	132.00
3/13/2013	4.0	Check and adjust water level in cells/install box barriers/increased P18 order	44.00	176.00
3/14/2013	2.0	Check and adjust water level in cells/Wst buffer burned 13th PM/called Bruce	44.00	88.00
3/15/2013	8.0	Check and adjust water level in cells/3 muskrats/pulled salt cedars/clear pigs	44.00	352.00
3/16/2013	3.0	Check and adjust water level in cells/1 muskrat/install box barriers	44.00	132.00
3/17/2013	3.0	Check and adjust water level in cells/Pull saltcedar/meet w/ Bruce	44.00	132.00
3/18/2013	2.0	Check and adjust water level in cells/1 muskrat/no water-called IID to report	44.00	88.00
3/19/2013	6.0	Check and adjust water level in cells/Backhoe cleaning outlets/meet w/ Bruce	44.00	264.00
3/20/2013	3.0	Check and adjust water level in cells/2 muskrats/Backhoe finishing up	44.00	132.00
3/21/2013	2.0	Check and adjust water level in cells/1 muskrat	44.00	88.00
3/22/2013	7.0	Check and adjust water level in cells/cleaned container/pulled saltcedar	44.00	308.00
3/23/2013	11.0	Check and adjust water level in cells/Irr West buffer/pulled saltcedars	44.00	484.00
3/24/2013	9.0	Check and adjust water level in cells/Irr West buffer/pulled saltcedars	44.00	396.00
3/25/2013	5.0	Check and adjust water level in cells/Finished Irrigating/Meters pulled P22	44.00	220.00
3/26/2013	7.0	Check and adjust water level in cells/Ditch low - called IID/pulled saltcedars	44.00	308.00
3/27/2013	2.0	Check and adjust water level in cells	44.00	88.00
3/28/2013	2.0	Check and adjust water level in cells	44.00	88.00
3/29/2013	5.0	Check and adjust water level in cells/pulled saltcedars	44.00	220.00
3/30/2013	2.0	Check and adjust water level in cells	44.00	88.00
3/31/2013	4.0	Check and adjust water level in cells/pulled saltcedars	44.00	176.00
	113.0	TOTALS		4,972.00

Managed Marsh Report
April, 2013

It seems like April was even busier than March.

Everything is turning green, including lots of weeds. Hopefully we can get the marsh sprayed in May. Willows are still leafing out but most have finished and are flowering. Mesquites in the East buffer are looking very good and they were irrigated again on April 20, 2013. The last irrigation was January 2, 2013. The fire on the West buffer in March appears to have killed all the trees that were exposed to the fire.

I have spent quite a few hours this month pulling saltcedars, especially those growing near willow trees. I also cleared the east buffer area of saltcedars by cutting the existing trees and treating the stumps in the three lands where mesquite trees are growing.

The cattails have not greened up as rapidly as they did in years past however the reeds seem to be on schedule. This could be due to a colder winter that killed back the cattails more severely.

Discussions with Chris Schoneman regarding the low amount of water being used in the Managed Marsh led me to believe we may not be wetting the center of the ponds and the water is only flowing around the perimeter of the ponds in the moats. Because of the height of the tules it is impossible to tell what the water levels are in the middle of the cells and evidently there is no data for each cell to show how high the water level should be at the drain boxes to be sure the middle of the cells are wetted. Testing the water draining out of P2-6 I found the EC very similar to canal water. After discussions with Bruce Wilcox it was decided that I would raise the levels of all cells to maximum safe levels. An increase in EC after the middle of the cells became wetted would confirm we had been successful in wetting the middle portions of all the cells. At the end of the month all cells are being maintained at maximum water levels.

Muskrats were very visible in March. In April they were less visible but there was a dramatic increase in muskrat holes (10) through the dikes when the water levels were raised in the cells. Attempts at trapping met with no success. I have provided Victor Montaño with a sample label for a anti-coagulant bait we used on the Imperial wetland it would be very helpful if the Marsh PCA, Steve Nickus, worked with Victor Montaño and the ag commissioner to obtain the bait we need to help control muskrats. Hopefully Victor is successful in obtaining an authorization to use bait. In the meantime Bruce Wilcox is exploring the possibility of using a carbon monoxide generator on the muskrat nesting chambers.

Unfortunately the dikes were not repaired from last year's muskrat damage and the estimated 450 yards of lost soil was not replaced before nesting season started. Work cannot continue, filling in the low spots in the dikes, until September 1, 2013 after the nesting season is over. The dikes that have the most freeboard have far less muskrat damage than those that only have a foot or less of freeboard.

In addition IID does not currently own a dump truck that can safely travel on the dikes. The existing trucks are too large to maneuver and axles could easily be broken. I would suggest exploring the possibility of IID purchasing or leasing a five-yard tandem axle dump truck to allow hauling soil inside the marsh to repair dike washouts. The muskrat problem is not going away and will only get worse. Future construction should seriously consider higher dikes to reduce muskrat damage.

As of May 1, 2013 we will only have 3.7 acre feet per acre to use between now and December 31, 2013. Had the water been allocated retroactive back to January 1, 2013 with 5.45 acre feet per acre we would have had a good chance of using water within our allotment. However, with allocation starting May 1, 2013 we have effectively lost 289 acre feet of water compared to if the allocation had started retroactive back to January 1, 2013. This is because the marsh uses less water in the first four months of the year.

Planned burning of the ponds this Fall may be very dangerous and catch the whole marsh on fire due to the large amount of cattail fuzz everywhere. Cattail fuzz burns like gasoline and will spread the fire very rapidly. In addition whirlwinds created by burning can easily suck up dry cattails and create columns of fire 500 feet high. The falling embers could easily catch the cells with trees on fire. It may be possible to drain each cell individually in the early fall while it is still hot and cut and bale the cattails instead of baling. USFWS, who has a special burn team, may be helpful in preparing a plan to burn specific cells within the marsh if that is the route that is taken and may even be willing to help with the controlled burn.

Hundreds of bullfrogs are visible every day along the banks and crayfish are beginning to appear however the water temperature is not yet optimum for crayfish.

Many of the waterfowl have moved on but a few cinnamon teal pairs along with mallards and redheads remain. Currently, large numbers of warblers are moving through the area. In addition, clapper rails and least bitterns are becoming much more active and more visible every day and more coyote signs are evident within the cells as they attempt to dig up the muskrats in their dens.

Managed Marsh Report
May, 2013

Temperatures in May are increasing and reeds and cattails continue to mature. The whole marsh is looking much greener as water levels have been raised in all the cells.

I am still waiting for weeds in the marsh to be sprayed. Salt cedar, atriplex, arrowweed, and spiny aster are growing very rapidly.

It was thought the fire in the West buffer in March might have killed all the trees that were exposed to the fire but new growth was discovered in mid-May. It was decided to cut all the dead wood out, haul out the branches, and irrigated back. That was completed by the end of the month. Jackrabbits had moved in and were feeding on the new tender mesquite shoots. Three are no longer doing that. The new regrowth is growing very rapidly.

The water demand for the marsh has been higher than past years. Cell P1-5 is using very high amounts of water. 1.5 cfs is going into the cell and only .25-.5 cfs is dumping to cell P1-1 for most of the month. A series of earthquakes centered just one mile west northwest of the marsh may have opened up fissures and is allowing water to drain from the marsh. In addition to P1-5 cell, all of the P3 cells dropped drastically after the earthquakes. I am still putting 3-4 cfs of water into the P3 cells to try to maintain the level. Luckily excess water has been coming down the ditch most days and I am taking all of it to keep the P3 cells at the correct level. During this time a purplish-red stain was found in one of the P3 cells and you, Victor, and Jessica came see and take samples.

The mud pots on the dike between P2-5&6 are very active and I am seeing smaller CO^2 elsewhere in the P2 and P3 cells. Operating within our allotted 3.7 acre feet per acre between now and December may be very challenging. I will continue to take advantage of excess water coming down the canal.

The muskrats continue to win and multiple washouts were found during May. I was successful in trapping three and shooting a few more. IID maintenance repaired the washouts and also hauled in some yellow clay from their pit on the west desert near the end of the Westside Main where the Trifolium Extension starts. I have been told this type of clay may be high in selenium and Jessica was going to take samples to be analyzed. Most of it was dumped on the dike between P2-4&5.

Reeds seem to be regenerating with a much higher population than cattails and atriplex bushes are coming on strong especially on the dike between the P1 and P2 cells. It is impossible to drive down that dike without the atriplex brushing the sides of my vehicle.

All cells are still being maintained at maximum water levels to create maximum growth in the cells.

Young clapper rails are seen daily as well as young coots, gallinules, mallards, and cinnamon teal. I also believe redhead ducks are nesting but have not seen the young yet. Hundreds of bullfrogs and tadpoles are visible every day along the banks and crayfish are beginning to appear as the water temperature warms up attracting raccoons to feed on them and bullfrogs. Coyotes and raccoons are constantly digging up muskrat nesting chambers along the dike roads.

Eynon sprayed the marsh drain on the south side but missed a section for some reason and will have to respray that section.

June, 2013 Managed Marsh Report

Hot weather, actively growing cattails, and possibly earthquake faults are keeping the water use at a level far above last year.

The container was tagged on May 30, 2013. I painted it out a few days later with paint found in the container.

Critters - all kinds of baby ducks, coots, gallinuels, and clapper rails running around everywhere. I believe one pair of kites and one pair of northern harriers are nesting in the marsh. Frogs everywhere and lots of crayfish. More and more raccoons moving in. I trapped numerous muskrats and shot even more. Got five one day. The last week in June saw a large increase in the numbers of a small dragonfly....thousands of them. I am staring to see a few Virginia rails. Guy McCaskie confirmed it during one of his tours of the marsh. Muskrats are very active and we have had numerous washouts this month. Carp have been visible congregating on the top of the water, spawning. Tilapia are more active as the water warms up. Great blue herons are catching more and more carp, bass, and even muskrats that are too big to eat and are leaving them on the bank for the raccoons and coyotes to take care of. I spotted the same young male bobcat twice during the month on the south end of the dike between cells P1-1 and P1-2. Got some fairly decent photos. Lots of king snakes, gopher snakes, and coachwhip snakes seen everyday. I shot two small rattlesnakes during the month.

Fault - lots of new bubbles coming up in P2-6 that weren't there before. The big mudpots are more active now. Bruce Smith, farmer that farms around the geothermal plants claims earthquakes are caused by the new wells being tested and blown. That appears to coincide with all the earthquakes we had in May when they started testing the two new wells near the marsh. The epicenters were at the well sites.

Water Consumption - This was a big problem during June especially in P1-5 and all P3 cells. It's like a hole that can't be filled up. P1-5 is doing better at the end of the month and I believe P3 cells are also requiring less water but I am still running 2-3' a day of water in P3 cells to keep the water levels static. It only took 1' a day last year at the same time. Total consumption of the marsh this month was 330.2 ac/ft compared with 240.0 last year and that is only what we were billed for. In P3 cells I took all excess water coming down the ditch which was 2-4 cfs per day more than was ordered. On June 12th I cancelled the water order for P2 cells and blocked up the drain boxes to try and conserve water. On June 16th the water in P2-1 and P2-2 cells looked anerobic and mosquito fish were seen gulping air on the surface. I pulled the boards and ordered enough water to have more flow-through. Fresh water is now coming in most P2 cells every day through the valves on each cell plus flowthrough.

Leaking boxes - on the south side of the marsh there are lots of leaking boxes dumping water into the marsh drain which causes the weeds in the drain to grow. I experimented with dumping a five gallon bucket of ground steer manure in front of the drain boxes and

it stopped 70% of the leaks. If there are no objections I will do the same for the P1 and P3 cells that leak.

Ed Hale - Ed started clearing salt cedars on the east buffer on June 18th and then moved to P3-1 cell and worked there for the next few days.

I am not aware of Eynon re-spraying the drain on the Managed Marsh. I think we are at the point that the drain will now require cleaning with a backhoe because the cattails have grown so high and are blocking the flow of water.

TRIFOLIUM, INC.
P.O. BOX 1
WESTMORLAND, CA 92281

To: Bruce Wilcox - IID
Work Description
Managed Marsh

MANAGED MARSH

DATE	HRS	DESCRIPTION	HR Rate	TOTAL
7/1/2013	2	Check water	44.00	88.00
7/2/2013	2	Check water / Try out cabon monoxide machine with Victor	44.00	88.00
7/3/2013	2	Check water	44.00	88.00
7/5/2013	3	Check water / Record water use in each cell	44.00	132.00
7/9/2013	3	Check water / Record water use in each cell / Shot 2 muskrats/County CO machine	44.00	132.00
7/12/2013	3	Check water / Oxygen levels low / fish dying/ Washout on P1-5-6 dike	44.00	132.00
7/13/2013	2	Check water / Meet with Bruce to look at low oxygen levels	44.00	88.00
7/15/2013	2	Check water	44.00	88.00
7/18/2013	3	Check water /Washout P3-2-P3-3 dike / IID fixed both washouts	44.00	132.00
7/19/2013	2	Check water / Small willows dying from low root oxygen in NW corner of P1-6 cell	44.00	88.00
7/22/2013	2	Check water / More cattail clumps floating from muskrat damage	44.00	88.00
7/24/2013	2	Check water	44.00	88.00
7/26/2013	3	Check water / Record water use in each cell	44.00	132.00
7/27/2013	2	Check water / Lot of new willows sprouting from seed and coming up	44.00	88.00
7/31/2013	3	Check water / Lots of dragonflies present in all cells	44.00	132.00
	36	TOTALS		1,584.00

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August, 2013 Managed Marsh Report

Critters – Found another dead muskrat. It is understood that Sony Bonno group will collect any more found for analysis. Clapper rails still very active and bird watchers are visiting the marsh daily to view them. Lots of muskrat sign. Damage to dikes is increasing. Two more washouts this month. More and more dragonflies are hatching and flying around. Red-Winged blackbirds are starting to migrate into the marsh while yellow-headed blackbirds diminishing in numbers. Saw a indigo bunting and black-headed grossbeak in P1-5. Young coyotes seen almost daily in P3-5 North end of cell.

Water Consumption – Water consumption is lower this month as well as compared to this month same time last year by 12%. I am not sure whether it is truly lower since we are receiving more water than ordered as we take all that is coming down the ditch.

Plants – Starting to kill salt cedars, spiny aster, atriplex, and arrowweed in the cells. are growing rapidly along the dike roads. Hopefully IID drain maintenance will be able to get in and clean the south perimeter drain of cattails but first it need to be killed so plants are weak when removed. Irrigated both buffers this month. It took a lot more water than I had anticipated and ended up having to order finish heads for both buffers but the grass greened up within days after irrigation. Mesquites in the west buffer are growing very rapidly. Mesquites in the east buffer are not responding very well. Not sure why. Mowed P1 cell and was surprised to find much more salt grass and bermudagrass growing where the cattails were. It may be beneficial to mow the banks of all the cells a few times a year. Cattails come back rapidly after mowing. You can almost see them grow.

Nesting season – Now that nesting season is over it would be nice to start doing all the chores we have put off:

1. Repairing dikes from muskrat damage, bringing in fill dirt, leveling dikes
2. Install drainbox in east buffer
3. Kill cattails in the south marsh drain
4. Clean south marsh drainditch
5. Cut stump and treat as many salt cedars as possible
6. Contract with Desert Applicators to take care of the marsh
7. Finalize Managed Marsh weed control plan with Pat Young
8. Install drainboxes into IID drain at each cell
9. Dig ditch along east side of P1-5 cell to get water to P1-1 cell
10. Mow cattails in P2-6 cell, bale, and remove
11. Finish removing saltcedars in P2-6 cell and relevel
12. Repairing leaking valves

September, 2013 Managed Marsh Report

Critters – No muskrat washouts this month. Red-Winged blackbird numbers are building. Kingfisher is in residence. Starting to see more American bitterns and cinnamon teal. Young coyotes in P3-5 North end of cell are growing rapidly. Massive fish kills this month as water warmed up and oxygen levels dropped. High algae bloom in most ponds.

Water Consumption – Water consumption is lower again this month by 97.2 acre feet compared to last month. Water smelled terrible as low oxygen levels and hydrogen sulfide production coupled with hotter water killed many of the fish. At the end of the month the water quality was starting to improve and clear up.

Plants – Eynon sprayed the cattails on the south drain ditch but didn't get good coverage where cattails were tall. Irrigated both buffers last month and both are greened up rapidly. Mesquites in the west buffer are still growing very rapidly. Saltgrass is really growing fast where the P1 cells dike banks were mowed.

Sometime during the September 1 holiday a vehicle rolled over in the marsh near the southeast corner of P1-5 cell.

We still need to start on these all the chores we have put off:

1. Repairing dikes from muskrat damage, bringing in fill dirt, leveling dikes
2. Cut stump and treat as many salt cedars as possible
3. Contract with Desert Applicators to take care of the marsh
4. Finalize Managed Marsh weed control plan with Pat Young who will be down October 14, 2013.
5. Dig ditch along east side of P1-1 cell to get water to P1-5 cell
6. Mow cattails in P2-6 cell, bale, and remove
7. Finish removing saltcedars in P2-6 cell and relevel
8. Repair leaking valves

October, 2013 Managed Marsh Report

Critters – Again, no muskrat washouts this month. Lots of raccoons working in the marsh feeding on crayfish. Coyotes are also evident almost every time I visit the marsh. Large flocks of green-winged teal moved in towards the middle of the month and are now being replaced by cinnamon teal. Northern flickers are moving through as well as Audubon warblers

Water Consumption – Water consumption is higher this month by 70.2 acre feet compared to the same month last year even though the water was turned off during the time maintenance was taking place. Water started clearing up as temperatures and daylight hours lessened. At the end of the month the water quality appearance was excellent and the marsh required much less water. In November we should be able to reduce water consumption to a third or quarter of what was used this month.

Construction Maintenance: Maintenance crews removed all drainboxes and pipes on the east side of cells P1-2 through P1-4 and installed longer pipes and all remaining drain boxes on all cells so that drain water will drain directly into the "O" drain. The ineffective drain along the south side of the marsh is no longer needed and part of it has already been dried up. This was a very positive addition to the marsh. Also, a separate drain pipe was installed to convey drainwater from the east buffer directly into the "O" drain. The P1-1 east drainbox remains to furnish water for future tree plantings in the southeast corner of the marsh.

Plants – Mesquites in the west buffer are still growing very rapidly. Saltgrass and bermudagrass continues to grow where the P1 cells dike banks were mowed. Lots of tall cattails have blown over after heavy winds during the month.

We still need to start on these all the chores we have put off:

1. Repairing dikes from muskrat damage, bringing in fill dirt, leveling dikes
2. Cut stump and treat as many salt cedars as possible
3. Contract with Desert Applicators to take care of the marsh
4. Finalize Managed Marsh weed control plan with Pat Young who will be down the week of November 14, 2013.
5. Dig ditch along east side of P1-1 cell to get water to P1-5 cell
6. Mow cattails in P2-6 cell, bale, and remove
7. Finish removing saltcedars in P2-6 cell and relevel so we can fill with water
8. Repair leaking valves

November, 2013 Managed Marsh Report

Critters – Still no muskrat washouts but I do see a lot more muskrat activity. Raccons are visiting the marsh less. More bigger ducks like gadwall, redheads, and wigeon are showing up in the ponds. There are still large flocks of green-winged teal and cinnamon teal. Saw a pair of hooded merganzers on November 25th.

Water Consumption – Water consumption droped this month by 112.2 acre feet from the previous month. Total use was 172.6 ac/ft which represents an 39% reduction from last month. Water was turned off to the P20 cells on October 23rd and has been off ever since. All water for both P18 and P20 cells is delivered through P18 delivery and the water cascades through the ponds.

Now that Construction Maintenance: Maintenance crews have removed all drainboxes and pipes on the east side of cells and installed longer pipes to deliver water to the drains it would be beneficial to have a backhoe clean in front of the outlet boxes to "O" drain for cells P1-4 and P2-6. As it is now soil is in front of these boxes right up to the drain board making it difficult to change elevations or have standing water to float a board to keet the trash away from the drainbox. We also need to clean the drain for the east buffer up to the drain box to allow drain water to get away when we irrigate.

Plants – Tall cattails continue to blow over after heavy winds during the month. Do you still plan on controlled burns?

We still need to start on these all the chores we have put off:

1. Repairing dikes from muskrat damage, bringing in fill dirt, leveling dikes
2. Cut stump and treat as many salt cedars as possible
3. Contract with Desert Applicators to take care of the marsh
4. Finalize Managed Marsh weed control plan with Pat Young who will be down the week of December 15, 2013.
5. Dig ditch along east side of P1-1 cell to get water to P1-5 cell
6. Mow cattails in P2-6 cell, bale, and remove
7. Finish removing saltcedars in P2-6 cell and relevel so we can fill with water
8. Repair leaking valves

December, 2013 Managed Marsh Report

Critters – Muskrats have stepped it up a notch and there are now numerous sink holes in the dikes that were not apparent at the first of the month. Coyotes, racoons, and bobcats are very active digging up the dens. So far no washouts have been sighted. It would probably be very beneficial to have the grader come in and run his front wheels along the edge of the dikes to cave in the chambers prior to bringing in soil to fill the low spots. This seemed to kill a great deal of muskrats last year. Different species of ducks are moving through. There are still large numbers of green-winged teal staying in the marsh. Diving ducks are also present along with northern shovelers and gadwall.

Water Consumption – Water consumption increased this month by 60 acre feet from the same month last year. Total use was 184 ac/ft which represents a 50% increase from last year. Water was turned off to the P20 cells on October 23rd and has been off ever since. Looking at the total water used in 2013 shows a 9% increase over 2012 which represented 2,574 acre feet used. All water for both P18 and P20 cells continues to be delivered through P18 delivery and the water cascades through the ponds. There were much more cold days with frost last year and overall I would bet the we had warmer conditions this year plus extra water was needed to keep the P22 cells full.

Now that Construction Maintenance: Maintenance crews have removed all drainboxes and pipes on the east side of cells and installed longer pipes to deliver water to the drains it would be beneficial to have a backhoe clean in front of the outlet boxes to "O" drain for cells P1-4 and P2-6. As it is now soil is in front of these boxes right up to the drain board making it difficult to change elevations or have standing water to float a board to keet the trash away from the drainbox. We also need to clean the drain for the east buffer up to the drain box to allow drain water to get away when we irrigate.

During the grading of the roads during the first part of the month the grader hit and broke the cast iron standpipe that houses the valve to irrigate the west buffer. It is not known if the valve was damaged or not. I met with Richard Diaz the day it happened and he assured me he would fix it. I told him as soon as it was dug up the valve, which was covered with soil, needed to be opened a couple of turns to see if there was any damage and told him where the valve key was in the container and that the lock took the 207 key. He said he had that key and would check. I called a few weeks later to see if he had ordered the castiron standpipe and when they would complete repairs and he said I was supposed to check the valve. He didn't seem to remember that he had said he would do that. I asked if he wanted me to go ahead and dig down with a shovel to uncover the valve and he said yes. I told him it would take a couple of hours of shoveling and using a pick in the compacted roadway to accomplish that since it was deep and a large hole had to be dug. So then he told me he would have his crew do it the 23rd and replace the castiron standpipe with a plastic pipe. Nothing has been done to date and I have not called him back. We still don't know if there is damage or not beyond the cast iron standpipe being shattered and I would like to irrigate soon.

Plants – More tall cattails continued to blow over after heavy winds during the month. Pat Young and I showed Joe Yanez and his employee, George around the marsh after they met with you on the 19th. I felt Joe had a very good grasp of what we wanted accomplished on the marsh.

We still need to start on these all the chores we have put off:

1. Repairing dikes from muskrat damage, bringing in fill dirt, leveling dikes
2. Cut stump and treat as many salt cedars as possible
3. Contract with Desert Applicators to take care of the marsh
4. Finalize Managed Marsh weed control plan with Pat Young who will be down the the last week in January.
5. Dig ditch along east side of P1-1 cell to get water to P1-5 cell
6. Mow cattails in P2-6 cell, bale, and remove
7. Finish removing saltcedars in P2-6 cell and relevel so we can fill with water
8. Repair leaking valves
9. Clean the ditch that drains the east buffer zone.

APPENDIX 6

Analysis of Water, Sediment, and Biota Data Collection in 2011 and 2012 from the Managed Marsh Complex, Imperial Irrigation Districts – Managed Marsh 2013

Analysis of Water, Sediment, and Biota Data Collected in 2011 and 2012 from the Managed Marsh Complex, Imperial Irrigation District

PREPARED FOR: Bruce Wilcox/IID
Jessica Lovecchio/IID
Kelly Bishop/IID

COPY TO: David Christophel/CH2M HILL

PREPARED BY: Christine Arenal/CH2M HILL
Harry Ohlendorf/CH2M HILL

DATE: September 3, 2013

PROJECT NUMBER: 478637.03.31.01

Creation, operation, and management of the Imperial Irrigation District (IID) Managed Marsh Complex (MMC) are prominent mitigation requirements associated with the IID Water Transfer Agreement (Water Transfer). The MMC provides mitigation for the reduction in water volume in agricultural drains, caused by the Water Transfer, and for operation and maintenance activities related to the conveyance of irrigation water by IID. The MMC is a three-phase project that will create about 959 acres of managed marsh and riparian habitat. Phase I of the MMC is about 365 acres and includes emergent wetland, riparian, and scrub-shrub habitat. Information gathered from Phase I will be used to improve the design for Phases II and III. Project goals include creating habitat; minimizing water usage; evaluating design, construction, and management techniques; and minimizing construction impacts. The Yuma clapper rail (*Rallus longirostris yumanensis*) and California black rail (*Laterallis jamaicensis coturniculus*) are target indicator species for the success of the MMC. The Managed Marsh Complex Adaptive Management Plan (AMP) was developed to outline the monitoring and management efforts for infrastructure, water usage, water quality, vegetation, invertebrates and fish, wildlife, and vector control throughout Phase I (CH2M HILL, 2011). As a part of this plan, chemical data for water, sediment, and biota are to be evaluated to inform future monitoring and management of the MMC. The methods and results for this evaluation of data collected in 2011 and 2012 are provided in the following sections.

Methods

Co-located water, sediment, and biota samples were collected in June 2011 and June 2012 and analyzed for selenium and organochlorine (OC) pesticides. Data from those analyses were evaluated for consistency with the recommended sampling and analytical approach identified in the AMP and in the context of toxicological benchmarks presented in Table 4 of the AMP. In addition, analytical results for sediment were compared to the pre-construction soil sampling results (CH2M HILL, 2008), as possible, and patterns of selenium concentrations in water, sediment, and biota were compared to expected performance of a marsh system.

Results and Discussion

The following sections describe the results for the evaluation including a comparison of planned and actual samples collected; field and laboratory results for water, sediment, and biota compared to toxicity thresholds; and comparison of sediment concentrations measured in 2011 and 2012 to pre-construction soil concentrations measured in 2008. Additionally, patterns of selenium concentrations in water, sediment, and biota are compared to the expected performance of a marsh system.

Planned and Actual Samples Collected

Six sampling stations (one inlet and one outlet for each of P1, P2, and P3) were identified in the AMP, including the inlets of cells P1-5, P2-4, and P3-2 and the outlets of P1-4, P2-6, and P3-6 (Figure 1). These stations were sampled as planned in 2011. In 2012, the marsh was under IID management during an in-between period when the contract for a new irrigation manager was being finalized and cell P2-4 did not have sufficient water for sampling activities; therefore, an alternate inlet (cell P2-3) was sampled. Table 1 shows the number of water, sediment, and biota samples planned for collection at each of the six stations and the number actually collected during the 2011 and 2012 field efforts. These results are discussed below.

Water. A total of seven water samples (1 from each station plus 1 field duplicate) were planned for collection for analysis of total selenium (Table 1). All seven of these samples were collected as planned during the 2011 and 2012 sampling. Additionally, field measurement of several water quality parameters (electrical conductivity [EC], total dissolved solids [TDS], dissolved oxygen [DO], temperature, salinity, and pH) was planned at the six sampling stations plus one field duplicate. All of these water quality parameters, except TDS, were collected in the field from the six stations in both 2011 and 2012, though no field duplicate was collected for either year. TDS was collected only in 2012. Lastly, one station identified as having carbon dioxide release (either from P2-5 or P2-6) was planned for field measurement of the water quality parameters. Though only one station was planned for collection, these data were collected from carbon dioxide release locations in both cells during 2011. Neither station was sampled in 2012. It should be noted that the AMP also states that these same water stations (including field duplicates) will be sampled quarterly. Sampling for the three additional quarters was not completed in either 2011 or 2012. Quarterly sampling is important because the data can be used to evaluate trends in selenium concentrations and possible factors affecting these concentrations (e.g., conductivity) throughout the year.

Sediment. Three sediment samples from each of the six sampling stations and one field duplicate (a total of 19 samples) were planned for collection. All of these samples were collected as planned for both 2011 and 2012. Samples were analyzed for selenium, OC pesticides, and total organic carbon (TOC) as planned.

Biota. Collection of biota was generally planned to mirror sediment collection with 19 samples (3 composite samples from each of the 6 stations plus 1 field duplicate) collected for each biota type, except bird eggs for which one egg per nest from 10 black-necked stilt nests across the MMC plus one field duplicate egg were planned. Three types of aquatic invertebrates (including water column invertebrates such as corixids, benthic invertebrates such as dragonfly naiads, and crayfish), terrestrial invertebrates, fish, and bird eggs were planned for collection. Due to limited sampling success, only 47 and 36 of the planned 106 biota samples were collected in 2011 and 2012, respectively (Table 1).

One or two composite samples of water column invertebrates were collected from four of the sampling stations in 2011 (all but P1-4 Outlet and P2-6 Outlet) for a total of five samples, and one composite sample of water column invertebrates was collected from three of the sampling stations in 2012 (P1-5, P2-6, and P3-6). These samples included freshwater shrimp collected in kicknets and traps. In 2011, benthic invertebrates were collected from five of the cells (all but P1-4 Outlet) with one or two composite samples per cell for a total of six samples. In contrast, no benthic invertebrates were collected in 2012. The 2011 benthic invertebrate samples consisted of one or more of several types of invertebrates including clams, snails, dragonfly or damselfly naiads, beetle larvae, “insects”, and other invertebrates. No crayfish were collected in either year.

Fish were the most represented in the biota samples with 10 composite samples (including one field duplicate) collected in 2011 across five stations (1 or 2 samples per station for all stations except P2-6) and one or two composite samples from each of the six stations in 2012. Bird eggs were not collected in 2011 and 2012 because IID does not yet have the state and federal permits required for bird egg collection.

For these biota samples, measurement of selenium and moisture content was planned for water column invertebrates and benthic invertebrates and measurement of selenium, OC pesticides, moisture content, and lipid content were planned for crayfish and fish. These parameters were analyzed for as planned, except

for moisture content, which was not analyzed for in the 2012 biota samples. Additionally, OC pesticides were measured in all 2012 samples (benthic invertebrates and fish), instead of just fish as planned.

Field and Laboratory Results Compared to Toxicity Thresholds

The water, sediment, and biota selenium and DDE (the only commonly detected OC pesticide) results were compared to toxicity thresholds (low and high toxicity reference values [TRVs]) as presented in Table 4 of the AMP. In some cases, additional OC pesticides were detected in one or more sediment or biota samples and these detects were compared to toxicity thresholds, as possible. These additional thresholds for sediment were extracted from the pre-construction soil evaluation (CH2M HILL, 2008).

Water. Total selenium and several field-collected water quality parameters were measured in surface water from the three inlet and three outlet stations. Selenium concentrations ranged from a low of 0.304 µg/L (P3-6 Outlet in 2012) to a high of 4.38 µg/L (P1-4 Outlet B in 2011) across all cells and both years, with the greatest concentrations measured at the P1-4 Outlet in both 2011 and 2012 (Table 2). It was expected that selenium concentrations in water would decrease from the inlet to the outlet (as is seen for P2 and P3), but selenium concentrations in P1 increased from the inlet to the outlet in both years (1.68 to 4.07 or 4.38 µg/L in 2011 and 1.59 to 2.42 µg/L in 2012). Moreover, selenium concentrations in all water samples, except the three collected at P1-4 Outlet (2 primary and 1 field duplicate) were less than the low surface water TRV, and the P1-4 Outlet samples were less than the high TRV.

Although a trend of increasing EC values from the inlet to the outlet was observed for P2 and P3 in both years (Table 3), the greatest increase was from the inlet to the outlet in P1. Salinity was also greatest in cell P1-4 Outlet in both years (3.5 and 2.36 parts per thousand [ppt] in 2011 and 2012, respectively). A trend for pH and DO was not observed. The pH in cell P1-4 Outlet was the highest in the 2011 dataset (pH = 9.4 compared to the next-closest value of 7.9; Table 3), but pH in the outlet of this cell in 2012 (7.96) was less than in four of the other locations during that year. Similarly, DO was high in cell P1-4 in 2011 (10.7 parts per million [ppm]) compared to a low value in the same cell in 2012 (2.1 ppm).

Data collected at the carbon dioxide release areas in cells P2-6 and P2-5 are also shown in Table 3. Most water quality parameters were within the range of those measured for other cells in P2 and in P1 and P3 cells. However, pH was low (ranged from 6.5 to 6.7) at the two locations in P2 (P2-6 Middle and P2-5) that have observable CO2 bubbles and at P2-6 Outlet. Thus, the carbon dioxide releases in cells P2-6 and 2-5 are increasing the acidity of the cells as would be predicted. In the field, there was a noticeable decrease in plant and animal life in these acidic areas of the cells (Byron, personal communication 2013).

Sediment. Sediment was analyzed for selenium, TOC, and OC pesticides. Selenium was detected in all samples collected in 2011 and 2012 and ranged from 0.76 (P3-6 C in 2011) to 3.97 mg/kg (P1-5B in 2011; Table 4). All but three samples (P3-6 B, P3-6C, and P3-6 Outlet A) exceeded the low TRV (1 mg/kg), but none exceeded the high TRV of 4 mg/kg. A pattern of decreasing selenium concentrations from the inlet to the outlet was observed for all locations, except for P1 and P2 in 2012. For P1, selenium concentrations in 2012 increased slightly from the inlet to the outlet and for P2 the concentrations were about the same. The highest concentrations were measured in the four samples (3 primary plus one field duplicate) collected from P1-5 Inlet in 2011.

For DDE, all samples except P2-3 Inlet A in 2012 exceeded the low TRV and all P1 samples (P1-5 Inlet and P1-4 Outlet) from 2011 and P1-4 Outlet samples from 2012 also exceeded the high TRV. Additionally, the three samples collected at P2-6 Outlet in 2011, two samples from P3-2 Inlet in 2011, and one sample from P3-2 Inlet in 2012 exceeded low and high TRVs.

Some other OC pesticides analyzed for in sediment were detected in multiple P1 samples (particularly in the case of DDD, DDT, and delta-BHC), but were detected only sporadically in P2 and P3 samples (Table 4). Concentrations of beta-BHC and delta-BHC exceeded the low TRV for all detected samples, but exceeded the high TRV only in P3-2A Inlet collected in 2011 and P1-5 Inlet (3 of the 4 samples collected in 2011) and these exceedances were only slightly greater than the high TRV. DDD and DDT concentrations in more than half of

the detected samples exceeded the low TRV, but not the high TRV. Methoxychlor (detected in only one sample from P2-4 Inlet) did not exceed the low TRV and toxicity thresholds were not available for endosulfan sulfate, hexachlorobenzene, and hexachlorobutadiene.

Biota. The AMP indicates that water-column invertebrates, benthic invertebrates, and terrestrial invertebrates will be analyzed for selenium and moisture content. In contrast, crayfish, fish, and bird eggs will be analyzed for selenium, OC pesticides, moisture content, and lipid content. Terrestrial invertebrates, crayfish, and bird eggs were not collected in either 2011 or 2012; therefore no data are presented for these receptor groups. Biota data were analyzed for selenium and/or OC pesticides by a different laboratory in 2011 compared to 2012 and one laboratory provided the data in dry weight (in accordance with the AMP) and the other provided wet weight data. Because moisture content was not analyzed for in the 2012 biota samples, it was necessary to use the 2011 data to estimate moisture content for use with the 2012 data. The biota samples were grouped by biota and species type, as possible. Then the mean percent moisture for each group was calculated. Table 5 presents the 2011 percent moisture data and shows the mean for each biota group (i.e., fish, clams, mixed invertebrates, shrimp, and snails). The table further presents the values assumed for each biota sample collected in 2011. For example, the mean of all fish collected in 2011 (79.6 percent) was used to represent percent moisture for fish collected in 2012.

Table 6 shows the biota results for each year by cell, biota type, and analyte. Because laboratory data were provided in different units (some µg/kg dry weight [DW] and others mg/kg wet weight [WW]) the original results were converted to have consistent units and then conversions were done to derive DW-, WW-, and lipid-based concentrations, so that appropriate comparisons could be made to the TRVs. Selenium concentrations in benthic invertebrates ranged from 0.44 to 4.1 mg/kg DW, with one of five samples exceeding the bird diet low TRV (P1-5 Inverts collected in 2011 from P1-5 Outlet and consisting of damselflies). For water column invertebrates, selenium concentrations ranged from 1.21 to 5.63 mg/kg DW and one of the eight samples exceeded the low TRV (P3-2 Sh) and one exceeded both the low and high TRVs (P1-5 Inlet Shrimp). Concentrations of selenium in fish ranged from 1.52 to 7.72 mg/kg DW. Ten fish samples exceeded the whole-body fish and bird diet low TRVs and five of these ten also exceeded the bird diet high TRV. All of these exceedances of the high TRV were from cells P1-5 Inlet and P1-4 Outlet, with the highest selenium concentration in fish (7.72 mg/kg DW) reported for mosquitofish collected at P1-4 Outlet.

None of the DDE concentrations measured in biota collected from 2011 exceeded available toxicity thresholds. In 2012, mosquitofish collected from P1-4 Outlet had the highest measured DDE concentrations for all biota (4.58 mg/kg WW). This value was 12 times the whole-body fish high TRV and about 1.5 times the bird diet high TRV (Table 6). Mosquitofish samples collected at P1-5 Inlet and a second sample from P1-4 Outlet in 2012 exceeded the whole-body fish high TRV, but not the bird diet TRVs. Similarly, a mosquitofish sample collected in 2012 from P3-2 Inlet exceeded the whole-body fish high TRV, but not the bird diet TRV. DDE concentrations were also measured in three water-column invertebrate samples in 2012 (though these were not indicated in the AMP). These concentrations were below the toxicity threshold for whole-body aquatic invertebrates and for the low and high bird diet TRVs.

DDD, DDT, and dieldrin were sporadically detected in fish samples collected from P1 and P2. The DDE toxicity thresholds were used as a surrogate for DDD and DDT, but whole-body aquatic invertebrate, whole-body fish, and bird diet TRVs were not available for dieldrin. None of the concentrations of DDD or DDT in fish tissue exceeded the whole-body fish high TRV or the bird diet low and high TRVs.

Sediment Comparisons to Pre-construction Soil Concentrations

Soil concentrations of selenium and OC pesticides were reported for six fields (O1, O3, P2, P5, Q1, and Q3) in the area planned for development of the MMC (CH2M HILL, 2008). Soil samples were collected at the 0-3-inch and 36-inch depths from four soil test pits within each field and were homogenized into one composite soil sample per field. Of these composite samples, those data for P2 are most relevant for comparisons to sediment collected from the Phase 1 footprint of the MMC (fields P1, P2, and P3), with surface concentrations (0-3 inches) being the most comparable to surface sediment samples. The selenium and OC

pesticide results for soil from both depths in field P2 are listed in Table 7. For selenium, the shallow soil depth had a concentration of 1.2 mg/kg, a value that exceeds the low TRV, but not the high TRV for sediment. This value is less than sediment collected from most cells in P2, as well as for most cells in P1 and P3 (Table 4). Similar to the pre-construction soil results, selenium concentrations in most cells across the MMC exceed the low TRV, but are less than the high TRV. The highest concentrations were measured in sediment from the P1-5 Inlet (range of 2.84 to 3.97 mg/kg) in 2011; they were lower in 2012 (1.16 to 1.24 mg/kg). These data indicate that selenium concentrations are similar to or slightly greater than the composite sample reported the pre-construction P2 field, except for at P1-5 Inlet where concentrations were about 3 times the pre-construction value. However, because pre-construction data specific to field P1 are not available, it is not known whether elevated concentrations at the P1 inflow are a result of marsh performance or a relic from the pre-construction soils in the P1-5 Inlet area.

With the exception of DDE and DDT, OC pesticides were not detected in pre-construction soils from P2 (Table 7). A DDE concentration of 21 µg/kg was detected in the P2 composite. This value exceeds the low TRV for DDE, but not the high TRV. The DDT concentration (1.3 µg/kg) did not exceed either the low or high TRV. Almost all of the sediment collected from the Phase I MMC had DDE concentrations that exceeded the low TRV, and many exceeded the high TRV (Table 4). Sediment DDE concentrations were greatest at the P1-4 Outlet in both years and exceeded both the low and high TRVs. High and low TRVs were also exceeded for all samples from P1-5 Inlet, P2-6 Outlet, and three samples from P3-2 Inlet. However, the exceedances for the P2-6 Outlet and P3-2 Inlet were less than 1.5 times the high TRV. Because DDE in samples collected pre-construction from P2 exceeded the low TRV, but not the high TRV, 2011 and 2012 sediment data suggest that localized areas of high DDE may exist in several of the MMC cells, particularly within the P1 field and notably at the P1-4 Outlet.

DDD, DDT, beta-BHC, delta-BHC, dieldrin, endosulfan sulfate, hexachlorobenzene, hexachlorobutadiene, and methoxychlor were also detected in some sediment samples collected in 2011 and 2012 (Table 4). All but DDD, DDT, and delta-BHC were detected in only one sample and detects of DDD and DDT were clustered in the P1 samples. Similarly, all the delta-BHC detects were from field P1. Of these, only DDT was also detected in pre-construction soils collected from P2, but this composite sample did not exceed toxicity thresholds. Detected DDT concentrations in P1 and P3 sediment exceeded the low TRV, except for one case in 2011, whereas the one detect in P2 did not exceed the low TRV. However, DDT in pre-construction soil did not exceed the low or high TRVs. Detected values of DDD, beta-BHC, delta-BHC, and dieldrin in some samples also exceeded the low TRV (and the high TRV for beta-BHC and some cases of delta-BHC), though these are generally low level exceedances. As with the DDE data, these additional OC pesticide detects suggest low levels of contamination in localized areas across the MMC, and especially near the P1-4 Outlet, that are likely due to residual levels of these OCs from historic pesticide use in the area.

Patterns of Selenium and DDE Concentrations Compared to Expected Marsh Performance

Comparisons of inlet to outlet water selenium concentrations for fields P2 and P3 were as expected, with substantially decreased concentrations at the outlet compared to the inlet. However, in P1, there was an unexpected increase in selenium concentrations from the inlet to the outlet in both 2011 and 2012, though this increase was lower in 2012 compared to 2011 (1.68 to 4.07 or 4.38 µg/L in 2011 and 1.59 to 2.42 µg/L in 2012). Additionally, selenium concentrations at all inflows were below the low and high TRVs, whereas the outflow at P1-4 exceeded the low TRV. Greater increases in EC from the inlet to the outlet in P1 (compared to more modest increases in P2 and P3) suggest that water may be staying in the cell for a longer period compared to the other cells. A pattern of decreasing selenium concentrations from the inlet to the outlet was observed for sediment at all locations, except for P1 and P2 in 2011. For P1, selenium concentrations increased slightly from the inlet to the outlet and for P2 the concentrations were about the same. The highest concentrations were measured in the four samples (3 primary plus one field duplicate) collected from P1-5 Inlet in 2011. These higher selenium concentrations in P1-5 Inlet sediment may contribute to the increase in water concentrations of selenium observed in the P1-4 Outlet; however, this pattern was not observed for sediment data from 2012. It is also noteworthy that the highest concentration of selenium in

biota (fish in this case) was observed in the P1-4 Outlet. Moreover, all of the next four highest selenium concentrations were from fish collected in either P1-5 Inlet (or P1-5 Outlet – which is from special collection at the outlet of cell P1-5 conducted during 2011) or P1-4 Outlet. All five of these samples exceeded the low and high bird diet TRVs. These high concentrations in fish collected from the P1-4 Outlet support the water data that indicate selenium is elevated in this cell.

The greatest concentrations of DDE were measured in the three sediment samples collected at P1-4 Outlet for both years (Table 4). Moreover, mosquitofish collected from P1-4 Outlet in 2012 also had the highest DDE concentration of all the biota collected and this was the only sample to exceed TRVs for bird diet. Sediment concentrations at this location exceeded the high TRV for DDE with a concentration to TRV ratio ranging from 2.1 to 5.8. DDE in samples collected pre-construction from P2 exceeded the low TRV, but not the high TRV. These data suggest that a localized area of high DDE may exist in the P-4 Outlet and that bioaccumulation into fish may be a threat to both fish (tissue concentration 12 times the whole-body high TRV) and fish-eating birds (1.5 times exceedance of the high bird diet TRV).

Conclusions and Recommendations

An unexpected increase in selenium concentrations from the inlet to the outlet was observed for water samples collected at P1 for 2011 and 2012. This increase is the likely cause of the elevated selenium observed in fish collected from the P1 field. Sediment data from 2012 show some of the greatest selenium concentrations in sediment from the P1 inlet compared to sediment concentrations for the P2 and P3 inlets and outlets, which may contribute to the increased selenium concentrations in P1-4 Outlet water. However, selenium concentrations in sediment samples collected from the P1 inlet in 2011 were not substantially different from those in other cells. In addition, pre-construction selenium in soils from the P2 field are generally within the range of selenium measured in most 2012 samples across all three fields, but are lower than all but two samples from 2012 (two samples from the P3-6 outlet).These increased water concentrations may also be related to residence time within the cell as evidenced by the much higher EC in the outflow compared to the inflow in P1.

DDE was found to be elevated across the MMC (most locations exceeded the low TRV), though the highest concentrations were measured in P1, particularly at the P1-4 Outlet. These concentrations were generally slightly greater than the pre-construction concentration for P2, except for the P1 detections which were about 2 to 3 times greater than the pre-construction DDE level in P2. Biota data indicate that this DDE is accumulating in fish to levels that exceed toxicity thresholds for whole-body fish and bird diet. A similar pattern of elevated concentrations in field P1, and particularly P1-4 Outlet, was observed for some other OC pesticides. Of these, all but DDT were non-detected in pre-construction soil from P2. These data suggest low levels of contamination in localized areas across the MMC, and especially near P1-4 Outlet, These levels are likely due to residual levels of these OCs from historic pesticide use in the area and may be of concern for fish and fish-eating birds.

Recommendations for future monitoring efforts include the following:

- Water data were not collected on a quarterly basis (spring, summer, fall, winter) as planned in the AMP, but instead, were only collected during the June sampling events. These data (field water quality parameters and total selenium) should be measured quarterly during future years so that seasonal trends can be evaluated. Specifically, quarterly water data would provide more sample points to determine whether the possible trend of increasing selenium from the inflow to the outflow is persistent or whether selenium concentrations are elevated only during certain times of the year.
- Shorebird eggs are good indictors of selenium bioaccumulation in aquatic ecosystems. It is recommended that bird eggs be collected as soon as is practicable as this will provide valuable information on how well the marsh system is performing.

- Other methods of sampling (or bait) for crayfish should be tried because crayfish are an important food item for some species of marsh birds.
- Whenever possible, invertebrate and fish samples should be submitted as replicated samples to enable evaluation of the variability in selenium or OC pesticide concentrations in biota.
- Analyses should be closely coordinated with the laboratory to ensure that analytical results are consistently reported in accordance with the AMP (e.g., on dry-weight basis for selenium in biota).

References

Byron, E./CH2M HILL. 2013. Personal communication with C. Arenal/CH2M HILL, August 20.

CH2M HILL. 2008. Summary Evaluation of Selenium and Organochlorine Pesticide Concentrations at IID Managed Marsh Site. Final Technical Memorandum prepared for J. Tupen of CH2M HILL by K. Rose and H. Ohlendorf of CH2M HILL. December 3.

CH2M HILL. 2011. Managed Marsh Complex Adaptive Management Plan, Draft Final. Prepared for the Imperial Irrigation District. May 2011.

APPENDIX 10

IID Water Department Crop Rank and Acreage & Annual Inventory of Areas Receiving Water

Draft 2011-2013 Report

Final 2010-2012 Report

DRAFT

IMPERIAL IRRIGATION DISTRICT
ANNUAL INVENTORY OF AREAS RECEIVING WATER
YEARS 2013, 2012, 2011

I CROP SURVEY

GARDEN CROPS	ACRES 2013	2012	2011
ALOE VERA	12	36	74
ARTICHOKE	49	67	98
BEANS		0	113
BLACKEYED PEAS	5	0	0
BROCCOLI	12,688	12,532	11,165
BROCCOLI (SEED)	748	157	352
BRUSSELS SPROUTS	52	138	0
CABBAGE	1,587	1,522	1,355
CABBAGE, CHINESE	135	196	171
CARROTS	13,698	12,230	11,932
CARROTS (SEED)	1	88	0
CAULIFLOWER	2,925	3,673	3,406
CELERY	549	875	783
CELERY (SEED)		0	157
CHINESE SPINACH		36	0
CILANTRO	283	560	745
COLLARDS		0	8
CORN, SWEET	8,571	7,629	8,274
CUCUMBERS	72	148	68
EGGPLANT		0	3
ENDIVE	107	548	127
FLOWERS	221	160	313
FLOWERS (SEED)	126	127	111
GARBANZO BEANS	140	27	0
GARLIC		0	155
HERBS, MIXED	207	163	167
HERBS, MIXED (SEED)		0	63
KALE	24	195	55
LETTUCE	11,218	13,625	12,393
LETTUCE, CHINESE		47	0
LETTUCE, GREEN	81	145	77
LETTUCE, MIXED	9,876	9,468	7,578
LETTUCE, RED	10	0	147
LETTUCE, ROMAINE	6,876	7,743	6,076
MELONS			
CANTALOUPES, FALL		0	126
CANTALOUPES, SPRING	5,763	4,623	6,192
HONEYDEW, SPRING	5	136	311
MIXED, FALL		68	68
MIXED, SPRING	462	547	425
WATERMELONS	716	862	1,016
MUSTARD		857	832
MUSTARD (SEED)		0	0
OKRA	265	499	332
ONIONS (DEHY)	4,484	4,713	
ONIONS (MARKET)	3,980	3,687	8,280
ONIONS (SEED)	1,415	1,918	1,872
PARSLEY		20	20
PEAS		0	5
PEPPERS, BELL	95	74	54
PEPPERS, HOT	14		
POTATOES	2,303	2,211	2,297
PUMPKINS		3	0
RADISHES	123	38	111
RAPINI	1,357	1,762	1,610
ROCKETT	276		
SPINACH	4,119	3,951	3,334
SQUASH	46	117	73
SQUASH (SEED)		0	37
SUNFLOWERS (SEED)	221	117	0
SWEET BASIL		72	265
SWISS CHARD	150	215	220
SWISS CHARD (SEED)		0	38
TOMATOES, SPRING	107	60	72
TURNIPS		7	104
VEGETABLES, MIXED	3,428	1,958	3,415
VEGETABLES, MIXED (SEED)	24	24	0
TOTAL GARDEN CROPS	**99,614**	**100,674**	**97,075**

FIELD CROPS	ACRES 2013	2012	2011
ALFALFA, FLAT	75,511	86,063	80,814
ALFALFA, ROW	31,393	43,582	33,615
ALFALFA (SEED)	29,987	25,710	19,057
BAMBOO	1	157	188
BARLEY	129	526	878
BERMUDAGRASS	30,709	31,268	31,564
BERMUDAGRASS (SEED)	20,473	20,846	21,043
CORN, FIELD	3,461	2,947	1,111
CORN, SILAGE	58	15	15
COTTON		0	2,293
FLAX	41	4	5
GRASS, MIXED	323	235	263
KLEINGRASS	16,790	14,778	13,614
OATS	4,959	2,565	2,033
RAPESEED	617	108	84
RED BEETS	159		
RYEGRASS	2,000	3,690	2,619
SAFFLOWER	391	273	35
SESBANIA	724	1,907	724
SORGHUM GRAIN	165	174	252
SORGHUM SILAGE	290	343	1,683
SOY BEANS	40	36	0
SPIRULINA ALGAE	87	87	48
SUDANGRASS	48,935	63,127	63,785
SUDANGRASS (SEED)	818	1,330	822
SUGARBEETS	26,008	25,222	25,534
SUGARCANE	324	271	340
TRITICALE GRAIN		0	0
WHEAT	41,652	89,866	74,476
TOTAL FIELD CROPS	**336,045**	**415,130**	**376,895**

PERMANENT CROPS	ACRES 2013	2012	2011
ASPARAGUS	30	58	68
CITRUS			
GRAPEFRUIT	669	653	287
LEMONS	1,720	1,749	1,467
LIMES	21	21	0
MIXED	4,518	4,596	5,295
ORANGES	342	266	157
TANGERINES	173	525	583
DATES	820	736	766
DUCK PONDS	10,237	10,364	10,681
EUCALYPTUS	8	8	9
FIGS	150	150	150
FISH FARMS	655	938	1,057
FRUIT, MIXED	7	5	4
GUAVA		0	22
JUJUBE	51	34	16
MANGOS		150	150
NURSERY	28	37	32
OLIVES	200	105	98
ORNAMENTAL TREES	33	38	48
PALMS	231	232	235
PASTURE, PERMANENT	546	552	642
PEACHES		0	3
PECANS	6	10	10
POMEGRANATES	67	67	71
TOTAL PERMANENT CROPS	**20,512**	**21,294**	**21,851**
TOTAL ACRES OF CROPS	**456,171**	**537,098**	**495,821**

Note: Crops are listed for the year in which they are predominately harvested.

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II ACCOUNT SUMMARY

	2013		2012		2011	
Number of Farm Accounts	5,853		5,853		5,912	
Number of Owner-Operated Farm Accounts	2,362	40.4%	2,362	40.4%	2,344	39.6%
Number of Tenant-Operated Farm Accounts	3,491	59.6%	3,491	59.6%	3,568	60.4%
Average Acreage of Farm Account	80.87		80.87		80.21	

III SUMMARY OF AREA SERVED

	2013	2012	2011
Field Crops	336,045	415,130	376,895
Garden Crops	99,614	100,674	97,075
Permanent Crops	20,512	21,294	21,851
TOTAL ACRES OF CROPS	**456,171**	**537,098**	**495,821**
Total Multiple Cropped Acres	38,600	104,587	55,257
TOTAL NET ACRES IN CROPS	**417,571**	**432,511**	**440,564**
Area Being Reclaimed: Leached	97	44	86
NET AREA IRRIGATED	**417,668**	**432,555**	**440,650**
IID Fallowing Program (12 Month Avg)	36,750	20,090	11,224
Area Farmable But Not Farmed During Year (Fallowed Land)	18,893	20,666	22,332
TOTAL AREA FARMABLE	**473,311**	**473,311**	**474,206**
Area Of Farms In Homes, Feed Lots, Corrals, Cotton Gins, Experimental Farms, Solar and Industrial Areas	16,526	16,526	16,088
Area In Cities, Towns, Airports, Cemeteries, Fairgrounds, Managed Marsh, Golf Courses, Recreational, Parks, Lakes and Rural Schools	30,470	30,470	30,013
TOTAL AREA RECEIVING WATER	**520,307**	**520,307**	**520,307**
Area In Drains, Canals, Reservoirs, Rivers, Railroads, and Roads	74,742	74,742	74,742
Area Below -230 Salton Sea Reserve Boundary & Area Covered By Salton Sea, Less Area Receiving Water	40,150	40,150	40,150
Area in Imperial Unit Not Entitled To Water	63,893	63,893	63,893
Undeveloped Area Of Imperial, West Mesa, East Mesa, and Pilot Knob Units	277,629	277,629	277,629
TOTAL ACREAGE INCLUDED - ALL UNITS	**976,721**	**976,721**	**976,721**
Acreage Not Included - All Units *	84,916	84,916	84,916
TOTAL GROSS ACREAGE WITHIN DISTRICT BOUNDARIES	**1,061,637**	**1,061,637**	**1,061,637**

IMPERIAL IRRIGATION DISTRICT

Ismael Gomez
Interim Manager
Water Department

* Acreage within District boundaries that is not included in District.

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IMPERIAL IRRIGATION DISTRICT
ANNUAL INVENTORY OF AREAS RECEIVING WATER
YEARS 2012, 2011, 2010

I CROP SURVEY

GARDEN CROPS	ACRES 2012	2011	2010
ALOE VERA	36	74	75
ARTICHOKE	67	98	19
BEANS	0	113	59
BLACKEYED PEAS	0	0	195
BROCCOLI	12,532	11,165	11,072
BROCCOLI (SEED)	157	352	140
BRUSSELS SPROUTS	138	0	0
CABBAGE	1,522	1,355	1,147
CABBAGE, CHINESE	196	171	278
CARROTS	12,230	11,932	12,503
CARROTS (SEED)	88	0	0
CAULIFLOWER	3,673	3,406	2,455
CELERY	875	783	639
CELERY (SEED)	0	157	130
CHINESE SPINACH	36	0	0
CILANTRO	560	745	558
COLLARDS	0	8	4
CORN, SWEET	7,629	8,274	8,800
CUCUMBERS	148	68	0
EGGPLANT	0	3	11
ENDIVE	548	127	0
FLOWERS	160	313	169
FLOWERS (SEED)	127	111	0
GARBANZO BEANS	27	0	126
GARLIC	0	155	0
HERBS, MIXED	163	167	114
HERBS, MIXED (SEED)	0	63	10
KALE	195	55	54
LETTUCE	13,625	12,393	13,046
LETTUCE, CHINESE	47	0	0
LETTUCE, GREEN	145	77	136
LETTUCE, MIXED	9,468	7,578	8,903
LETTUCE, RED	0	147	68
LETTUCE, ROMAINE	7,743	6,076	5,031
MELONS			
CANTALOUPES, FALL	0	126	88
CANTALOUPES, SPRING	4,623	6,192	6,626
HONEYDEW, SPRING	136	311	65
MIXED, FALL	68	68	56
MIXED, SPRING	547	425	675
WATERMELONS	862	1,016	1,171
MUSTARD	857	832	600
MUSTARD (SEED)	0	0	4
OKRA	499	332	610
ONIONS (DEHY)	4,713		
ONIONS (MARKET)	3,687	8,280	8,366
ONIONS (SEED)	1,918	1,872	1,535
PARSLEY	20	20	22
PEAS	0	5	6
PEPPERS, BELL	74	54	63
POTATOES	2,211	2,297	1,347
PUMPKINS	3	0	0
RADISHES	38	111	0
RAPINI	1,762	1,610	1,571
SPINACH	3,951	3,334	4,010
SQUASH	117	73	70
SQUASH (SEED)	0	37	0
SUNFLOWERS (SEED)	117	0	0
SWEET BASIL	72	265	138
SWISS CHARD	215	220	200
SWISS CHARD (SEED)	0	38	0
TOMATOES, SPRING	60	72	145
TURNIPS	7	104	63
VEGETABLES, MIXED	1,958	3,415	2,406
VEGETABLES, MIXED (SEED)	24	0	0
TOTAL GARDEN CROPS	**100,674**	**97,075**	**95,579**

FIELD CROPS	ACRES 2012	2011	2010
ALFALFA, FLAT	86,063	80,814	82,708
ALFALFA, ROW	43,582	33,615	34,298
ALFALFA (SEED)	25,710	19,057	23,269
BAMBOO	157	188	192
BARLEY	526	878	95
BERMUDAGRASS	31,268	31,564	28,132
BERMUDAGRASS (SEED)	20,846	21,043	25,968
CORN, FIELD	2,947	1,111	1,266
CORN, SILAGE	15	15	17
COTTON	0	2,293	437
FLAX	4	5	0
GRASS, MIXED	235	263	338
KLEINGRASS	14,778	13,614	12,415
OATS	2,565	2,033	1,491
RAPESEED	108	84	169
RYEGRASS	3,690	2,619	2,342
SAFFLOWER	273	35	436
SESBANIA	1,907	724	944
SORGHUM GRAIN	174	252	650
SORGHUM SILAGE	343	1,683	304
SOY BEANS	36	0	0
SPIRULINA ALGAE	87	48	28
SUDANGRASS	63,127	63,785	52,807
SUDANGRASS (SEED)	1,330	822	310
SUGARBEETS	25,222	25,534	25,188
SUGARCANE	271	340	594
TRITICALE GRAIN	0	0	104
WHEAT	89,866	74,476	57,464
TOTAL FIELD CROPS	**415,130**	**376,895**	**351,966**

PERMANENT CROPS	ACRES 2012	2011	2010
ASPARAGUS	58	68	98
CITRUS			
GRAPEFRUIT	653	287	468
LEMONS	1,749	1,467	1,596
LIMES	21	0	0
MIXED	4,596	5,295	4,468
ORANGES	266	157	198
TANGERINES	525	583	605
DATES	736	766	846
DUCK PONDS	10,364	10,681	10,307
EUCALYPTUS	8	9	9
FIGS	150	150	150
FISH FARMS	938	1,057	1,161
FRUIT, MIXED	5	4	4
GUAVA	0	22	25
JUJUBE	34	16	0
MANGOS	150	150	150
NURSERY	37	32	53
OLIVES	105	98	0
ORNAMENTAL TREES	38	48	32
PALMS	232	235	214
PASTURE, PERMANENT	552	642	574
PEACHES	0	3	23
PECANS	10	10	0
POMEGRANATES	67	71	10
TOTAL PERMANENT CROPS	**21,294**	**21,851**	**20,991**
TOTAL ACRES OF CROPS	**537,098**	**495,821**	**468,536**

Note: Crops are listed for the year in which they are predominately harvested.

II ACCOUNT SUMMARY

	2012		2011		2010	
Number of Farm Accounts	5,853		5,912		6,101	
Number of Owner-Operated Farm Accounts	2,362	40.4%	2,344	39.6%	2,412	39.5%
Number of Tenant-Operated Farm Accounts	3,491	59.6%	3,568	60.4%	3,689	60.5%
Average Acreage of Farm Account	80.87		80.21		77.72	

III SUMMARY OF AREA SERVED

	2012	2011	2010
Field Crops	415,130	376,895	351,966
Garden Crops	100,674	97,075	95,579
Permanent Crops	21,294	21,851	20,991
TOTAL ACRES OF CROPS	**537,098**	**495,821**	**468,536**
Total Multiple Cropped Acres	104,587	55,257	36,898
TOTAL NET ACRES IN CROPS	**432,511**	**440,564**	**431,638**
Area Being Reclaimed: Leached	44	86	185
NET AREA IRRIGATED	**432,555**	**440,650**	**431,823**
IID Fallowing Program (12 Month Avg)	20,090	11,224	17,253
Area Farmable But Not Farmed During Year (Fallowed Land)	20,666	22,332	25,064
TOTAL AREA FARMABLE	**473,311**	**474,206**	**474,140**
Area Of Farms In Homes, Feed Lots, Corrals, Cotton Gins, Experimental Farms, Solar and Industrial Areas	16,526	16,088	16,139
Area In Cities, Towns, Airports, Cemeteries, Fairgrounds, Managed Marsh, Golf Courses, Recreational, Parks, Lakes and Rural Schools	30,470	30,013	29,995
TOTAL AREA RECEIVING WATER	**520,307**	**520,307**	**520,274**
Area In Drains, Canals, Reservoirs, Rivers, Railroads, and Roads	74,742	74,742	74,735
Area Below -230 Salton Sea Reserve Boundary & Area Covered By Salton Sea, Less Area Receiving Water	40,150	40,150	40,150
Area in Imperial Unit Not Entitled To Water	63,893	63,893	63,933
Undeveloped Area Of Imperial, West Mesa, East Mesa, and Pilot Knob Units	277,629	277,629	277,629
TOTAL ACREAGE INCLUDED - ALL UNITS	**976,721**	**976,721**	**976,721**
Acreage Not Included - All Units *	84,916	84,916	84,916
TOTAL GROSS ACREAGE WITHIN DISTRICT BOUNDARIES	**1,061,637**	**1,061,637**	**1,061,637**

IMPERIAL IRRIGATION DISTRICT

J. P. Silva
Manager
Water Department

* Acreage within District boundaries that is not included in District.

APPENDIX 11

Canal Loss Issue Resolution Correspondence

United States Department of the Interior
BUREAU OF RECLAMATION
Lower Colorado Regional Office
P.O. Box 61470
Boulder City, NV 89006-1470

TAKE PRIDE IN AMERICA

IN REPLY REFER TO:
BCOO-4230
WTR 4.03

DEC 03 2007

CERTIFIED – RETURN RECEIPT REQUESTED

Mr. Mike Campbell
Acting General Manager
Imperial Irrigation District
P.O. Box 937
Imperial, CA 92251-0937

Subject: Transportation Loss Accounting for Imperial Irrigation District (IID) Fallowing Programs

Dear Mr. Campbell:

The Colorado River Water Delivery Agreement (CRWDA), dated October 10, 2003, commits IID to a program of conservation designed to reduce IID's consumptive use of Colorado River water to allow for certain water transfers identified in Exhibit B to the CRWDA and to allow for payback of overruns occurring in 2001 and 2002 identified in Exhibit C to the CRWDA. IID implemented fallowing programs that began in 2003 to conserve water to satisfy IID's obligations under Exhibits B and C to the CRWDA.

Implementation of the IID fallowing programs has given rise to the question of an appropriate accounting methodology to determine the amount of Colorado River water conserved by these programs. Water not applied to the development of crops on fallowed lands is clearly water that is conserved and is therefore available to satisfy an Exhibit B transfer or to reduce an Exhibit C payback obligation. The method used to quantify the amount of water conserved at the field by the land fallowing programs has not been in dispute.

Because IID's fallowing programs result in reduced diversions at Imperial Dam, there are also reductions in transportation losses relating to the fallowed lands. Water not lost in transport from Imperial Dam to the farmers' headgates due to the fallowing programs is clearly water that is also conserved. Developing an appropriate methodology to account for the amount of water conserved by a reduction in transportation losses has been the subject of considerable study.

Since the fall of 2004, the Bureau of Reclamation and IID have engaged in a series of technical discussions related to the development of an accounting methodology to quantify the percentage

of reduction in transportation loss due to IID's fallowing programs. The accounting methodology Reclamation is adopting may be stated as follows:

Total Diversion to Field Loss Percentage ($TDFLP$) = Total loss from Field to River [Sta. 60 ($STA60^t$) minus Delivered to Users (DTU^t)] minus 137,120 acre-feet divided by Sta. 60 ($STA60^t$)

$$TDFLP^t = (STA60^t - DTU^t - 137{,}120)/STA60^t$$

Where: $STA60^t$ is Sta. 60 (Column 4 on All American Canal (AAC) Accounting Sheet)
DTU^t is Delivered To Users (Column 18 on AAC Accounting Sheet)
$137{,}120$ = Constant
t is the current Year

Conservation Amount at Colorado River (CA^t_{river}) = Sum of Conserved amount at Fields ($\sum CA^t_{field}$) divided by 1 minus last year's Total Diversion to Field Loss Percentage ($TDFLP^{t-1}$)

$$CA^t_{river} = \sum CA^t_{field} /(1- TDFLP^{t-1})$$

The use of this methodology and these parameters to calculate the reductions in transportation losses will be reviewed by Reclamation and IID when significant new information arises that might affect transportation losses. For example, such new information might include physical changes to the canals, changes in operations, or changes in water flow measurement. Revisions to the methodology or parameters may be necessary to ensure a reliable scientific basis for computation of IID's transportation losses. Reclamation anticipates such revisions will occur infrequently and will be accomplished in consultation with IID.

The methodology Reclamation is now adopting to determine the quantity of water conserved as a result of reduced transportation losses will be used to determine the quantity of conserved water available for delivery to other users in accordance with CRWDA's Exhibit B or for payback to the Colorado River system in accordance with CRWDA's Exhibit C. This methodology will also increase the accuracy of the data compiled in the annual Colorado River Accounting and Water Use Reports (Accounting Reports) filed in *Arizona v. California*.

Reclamation will apply this methodology and these parameters to determine and report the quantity of water conserved by the use of land fallowing to meet the requirements of Exhibit B and Exhibit C to the CRWDA beginning in 2007. It is not Reclamation's usual practice to apply a change in accounting methodology retroactively. In this circumstance, however, Reclamation has indicated in recent Accounting Reports that the methodology was under review and that the values reported for Exhibit C might be changed accordingly. Reclamation will therefore also apply the revised accounting methodology to Exhibit C paybacks for the years 2004 through 2006.

Questions concerning Reclamation's transportation loss methodology for IID's following programs should be addressed to Ms. Ruth Thayer at 702-293-8426.

Sincerely,

Lorri Gray
Regional Director

cc: Mr. Gerald Zimmerman
Executive Director
Colorado River Board of California
770 Fairmont Avenue, Suite 100
Glendale, CA 91203-1035

Mr. Herb R. Guenther
Director
Arizona Department of Water Resources
3550 North Central Avenue
Phoenix, AZ 85012

Mr. George M. Caan
Director
Colorado River Commission of
Nevada
555 E. Washington Avenue, Suite 3100
Las Vegas, NV 89101

APPENDIX 12

Main Canal Seepage Recovery Project Description

Final

1.g. Canal Seepage Interception

Prepared as part of the

Imperial Irrigation District Efficiency Conservation Definite Plan

May 2007

Keller-Bliesner Engineering, LLC

78 East Center St.
Logan, UT 84321
(435) 753-5651

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1. Background

Seepage from Imperial Irrigation District (IID) main canals contributes a large portion of the 86,000 acre-feet per year (AFY) of total canal seepage from the IID delivery system (See Appendix 1, Section B). If not for the extensive drainage system in the valley, this seepage would contribute to waterlogging of farmland, especially land located immediately down slope of canals. In areas of highly permeable soils where losses are excessive, open drains have been constructed parallel to canals to intercept seepage and carry it to the Salton Sea so the lands can be farmed.

In the 1960's, piped interceptor drains were installed along reaches of the East Highline Canal (EHL) with high seepage losses, and the recovered water pumped back into the canal. The drains were placed very close to the canal, which actually increased the seepage by steepening the hydraulic gradient. The annual volume pumped from these drains was about 28,000 AF (average of 1997, 1998, 2004 and 2005).

There are other reaches of the EHL, as well as some reaches of the All American Canal (AAC) and the West Side Main Canal (WSM), that have appreciable seepage that is now being collected in open drains but is not recovered. In fact, some of the reaches where piped drains were installed still have a substantial volume of seepage that is not collected in the pipe drain, but is intercepted by an open drain a few hundred feet down slope from the pipe drain. These conditions indicate that the existing pipe drains are not fully effective in intercepting canal seepage.

This study was undertaken to determine the best approach to seepage interception along the EHL to estimate the volume of seepage that could be recovered and estimate the cost of recovery. It was later expanded to explore reaches along the AAC and WSM.

2. Methods and Assumptions

As originally conceived, the objectives of this study were as follows:

- Acquire and evaluate studies completed for the design and construction of the drainpipes and pumps installed on the EHL and evaluate the performance of these drains with recent pumping data.
- Identify additional reaches along the EHL to be evaluated for installation of interceptor drains. This was later expanded to reaches with similar conditions along the AAC and the WSM.
- Collect additional field data to analyze seepage conditions along these reaches and determine the best approach for seepage interception. The goal is to intercept the maximum amount of existing seepage while inducing the minimum amount of additional seepage.
- Estimate costs and savings potential for each reach studied.

2.1. Historical Data Analysis and Reach Selection

Soil boring data, surveys and studies completed for the installation of the 15 drainpipe projects were obtained from IID, along with recorded monthly pump volumes for 1997, 1998, 2004 and 2005. These data were studied in the context of the mapped soil textures to correlate drain performance and boring information to soil texture to choose additional reaches for study. In a

few cases, boring information was available for reaches not constructed. Some water level data were available to assess drain performance and average hydraulic conductivity, but it was incomplete. Performance data were also used to assess the variation in flow with time of year to relate surface drain flows measured in September and October to the full season.

The existing data cover 43 reaches of the EHL from Lateral 7 to Standard lateral (Table 1). The reaches are typically about one-half mile in length. Of these reaches, 12 already have buried pipe interceptor systems installed (15 total systems in the 12 reaches) and 31 do not. The 31 reaches were targeted for additional data collection, 20 of which were selected for full analysis.

Because of water quality considerations related to interception of farm runoff, the initial site identification was also limited to areas that did not have irrigation upslope of the EHL. Thus, the study area did not initially extend south of DP-21 (EHL Lateral 7). After the first studies were completed, the study area was expanded to include the EHL south of Lateral 7 to the AAC, westward along the AAC, and along the WSM. These areas were previously not included since there are areas of irrigation upslope of the canal. Areas that had highly permeable soils and drains paralleling the canal were investigated. An additional 12 reaches (four along the EHL, two along the AAC and six along the WSM) have been included for design analysis.

2.2. Design Approach

The original idea for seepage interception was to follow an approach similar to the drain-pipe projects, whereby drainpipes would be installed along with pumping plants to intercept the seepage before it reached the open drain paralleling the canal. The design objective is to select the drain distance from the canal and depth of drain placement that would result in interception of the maximum amount of seepage, yet induce the minimum amount of additional seepage. It was clear from the performance of the drain-pipe projects that placing the drain immediately adjacent to the canal did not intercept all the seepage and steepened the water surface gradient from the canal. This induces extra seepage, particularly from the side of the canal closest to the drain.

Land availability is somewhat limited along the canals without acquiring expensive easements on farmland, and dealing with costly modification of on-farm irrigation and drainage systems. Therefore, the drain locations are typically limited to within the canal easement (as is the case with most of the drain-pipe projects) or on the bank of the down slope open drain. Placing the drains within the canal easement puts them too close for effective interception, particularly in areas with relatively thick permeable substrate. This is because the AAC, EHL and WSM Canals are typically wide and the soils do not have uniform hydraulic conductivity with depth, resulting in deep seepage flow paths from the up-gradient side of the canal. The deep flow paths cannot be intercepted by a drain placed at typical drain depths immediately adjacent to the canal. This can be overcome by installing a deep French drain (coarse gravel in a deep trench below the drain-pipe), or by placing the drain farther from the canal. The latter option is far less expensive, so the location analyzed for the drain was on the upstream bank of the open drain paralleling the canal, typically within a few hundred feet of the canal.

Drain depth at this location must be sufficient to have a nearly flat groundwater surface profile immediately down slope of the drain. If the down slope water surface slopes away from the drain, then it is not intercepting all the seepage from the canal. If it slopes steeply toward the

drain, it will pick up deep percolation from the adjacent field and could have an increased salt load.

Table 1. Summary of EHL Interceptor Reaches Included in Detailed Analysis

Status	DP_ID	Reach	Reach_ID
Existing DPs	DP-21	EHL Lat 7 to EHL Lat 8	7
	DP-22	EHL Lat 8 to Pear	8
	DP-18	Pear to EHL Lat 10	9
	DP-19	EHL Lat 10 to EHL Lat 11	10
	DP-27	EHL Lat 11 to EHL Lat 12	11
	DP-17	Plum to Pine	19
	DP-20	Oat to Oasis	26
	DP-28	Oasis to Orient	27
	DP-26	Oxalis to Orange	31
	DP-25	Orange to Ohmar	32
	DP-24	Ohmar to Oleander	33
	DP-23	Oak to Moss	37
Candidates w/ some data	DP-30	EHL Lat 12 to EHL Lat 13	12
	DP-31	EHL Lat 13 to EHL Lat 14	13
	n/a	Pampas to Peach	17
	DP-29	Peach to Plum	18
	n/a	Pomelo to Pepper	22
	n/a	Township to Oat	25
	n/a	Occident to Orchid	29
	n/a	Oleandar to Orita	34
	n/a	Orita to Osage	35
	n/a	Moss to Magnolia	38
	n/a	Magnolia to Mesquite	39
	n/a	Mesquite to Maple	40
	n/a	Mulberry to Malva 1	45
	n/a	Malva 2 to Mayflower	47
Candidates w/o data or lower savings potential	n/a	Pepper to Pansy	23
	n/a	Pansy to Township	24
	n/a	Orchid to Oxalis	30
	n/a	Osage to Oak	36
	n/a	Maple to Mullen	41
	n/a	Malva 1 to Malva 2	46
	n/a	Mayflower to Marigold	48
	n/a	EHL Lat 14 to EHL Lat 16	14
	n/a	EHL Lat 16 to Palmetto	15
	n/a	Palmeto to Pampas	16
	n/a	Pine to Palm	20
	n/a	Palm to Pomelo	21
	n/a	Orient to Occident	28
	n/a	Mullen to Myrtle	42
	n/a	Myrtle to Munyon	43
	n/a	Munyon to Mulberry	44
	n/a	Marigold to Standard	49

Drain depth will also determine the amount of additional seepage induced by drain installation. If the drain steepens the ground water surface gradient from the canal, additional seepage will occur. If it does not, then there will be no increase in the seepage interception over that of the open drain.

The assessment must determine the drain depth required at the set location and estimate flow rates and annual volume recovered. If the analysis shows that the water surface profile downstream of the open drain is already flat or sloping to the drain, then a pipe drain is not needed and the solution will be to install a pump in the open drain.

2.3. Analytical Approach

To complete the drain design, the following information is needed:

- Hydraulic conductivity (HC)
- Accurate measurement of the flow in the existing parallel open drains
- Water surface from the EHL canal to the open drains (ideally surface profile, but at least key points)
- Water surface elevation immediately (approx 50-100 feet (ft)) down slope of the open drains

The historical data analyzed contains no reliable HC test data, but a process was developed to compute an area weighted HC over the length of each parallel open drain segment, based on the flow in the drain and the water surface profile on either side of the drain. While some historical water surface elevation data (in the canal and in the drain) were available from cross-section data for nine of the reaches, there is very little down slope water table data and no assessment of the drop in water table from the canal to a point immediately down slope of the canal. Further, there was no flow measurement in the open drains concurrent with water surface profile data. Historical data quality is variable and the data represent different points in time, some of it dating back into the 1960s. These data gaps and limitations were problematic, so a field data collection program was developed based on the analytical approach outlined here.

After compiling and analyzing the available data, it was determined that a Mod-Flow two-dimensional model approach is not possible without extensive data collection. Having analyzed the merits of a range of approaches, it was determined that the most accurate and least data intensive approach is a discrete solution approach based on classic porous media flow theory. We have developed an approach that will provide reliable design data and allow us to accurately assess the conservation potential of interceptor drains, including the potential for additional seepage induced by change in the drain depth and location with a reasonable data collection effort. The approach is based on careful analysis of the performance of the existing open drains as interceptors. Figure 1 shows a typical cross-section of the flow path for seepage from the canal to the open drain. Also shown are locations where water table elevation measurements are needed.

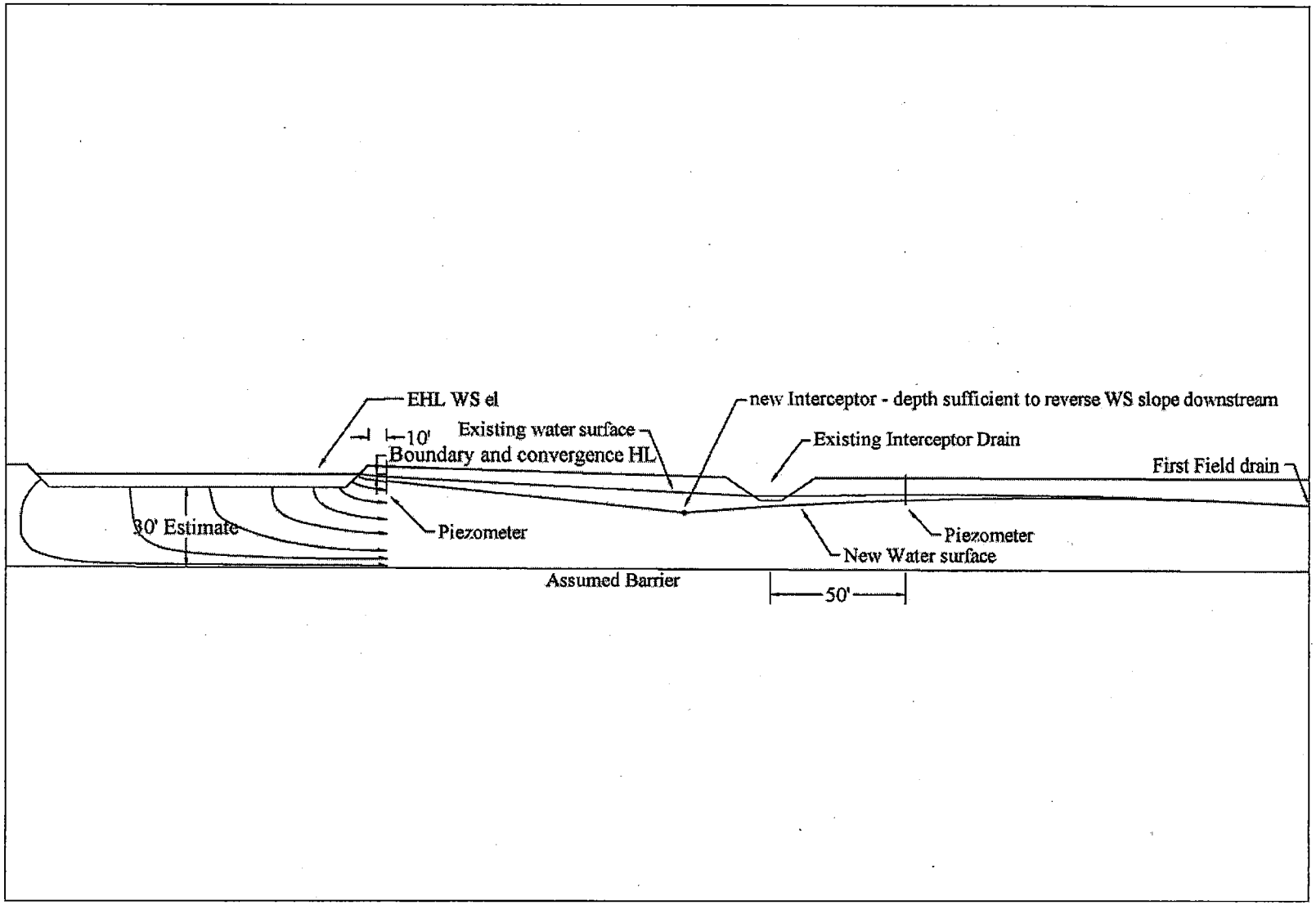


Figure 1. Conceptual Flow Diagram for Canal Seepage Interception

The analytical approach is based on Darcy's law:

$$Q = KIA \qquad \textit{Eq. 1}$$

Where:
- Q = Discharge – $ft^3/day/ft$
- K = Hydraulic Conductivity – ft/day
- I = Slope of the water table – ft/ft
- A = Area of saturated flow (since Q is in unit lengths, A = Saturated thickness above an impermeable barrier) ft^2/ft

Since K is not known, we can solve for K if we know the flow in the drain, the water surface elevation in the drain and at the two piezometer locations shown in Figure 1. We have assumed a depth to impermeable barrier of 30 ft, although the solution is independent of this assumption. Since the total flow in the saturated zone is a function of transmissivity and gradient, the computed HC is related to the assumed thickness. Thus, the resulting transmissivity is constant to produce the flow measured in the drain, regardless of the assumed thickness. As long as the assumptions of isotropic and homogeneous conditions are reasonable (no strongly layered conditions within the computation zone), the approach is valid.

The following equation is used to solve for HC:

$$K = Q_d/(I_1A_1 - I_2A_2) \qquad \textit{Eq. 2}$$

Where:
- K = Hydraulic Conductivity – ft/day
- Q_d = Flow in the Open Drain - $ft^3/day/ft$
- I_1 = Ground water slope from EHL piezometer to the open drain – ft/ft
- A_1 = Saturated thickness midway between the EHL piezometer and the Open drain - ft
- I_2 = Ground water slope from open drain to the field piezometer (negative slope is toward the drain) – ft/ft
- A_2 = Saturated thickness midway between the open drain and the field Piezometer - ft

After K is determined, the total seepage flow from the canal can be computed using Equation 1 with I_1 and A_1. Using Equation 1 with I_2 and A_2 provides an estimate of flow past the drain. If the gradient down slope of the open drain is negative, then the total seepage will be less than the flow in the drain. If it is positive, it will be greater and some underflow will occur.

With K determined, a new drain location and depth can be specified and the flow equation solved as described above. However, the change in drain location and depth changes the upslope gradient and thus the seepage from the canal. If the canal surface had been used as in the gradient calculation, the maximum possible induced seepage would be computed, over-estimating the impact, as Darcy's law does not allow for the boundary conditions that exist at the canal bottom nor the convergence of the seepage flow lines, unless a separate analysis zone is used.

Using a piezometric head measurement down slope of the canal, a separate Darcy flow equation can be solved using the head difference from the water surface to the piezometer and a flow path length equal to the median flow path shown in Figure 1of 75 feet. The area used is the canal width. Neither of these values is critical, since the solution for K integrates the assumptions as discussed above. Since the seepage flow is the same as computed above, Equation 1 is rearranged to solve for K using the measured conditions.

When the drain depth and/or location change, the head at the EHL piezometer is not known. However, since the flow rate in each segment must be the same, an iterative trial and error solution can be used to arrive at an adjusted head at the EHL piezometer. The result is an adjusted increased seepage rate that accounts for the boundary conditions and convergence at the canal.

The electrical conductivity measurements taken in the field were used to compute the salinity effect of the recovered drain water. If the conductivity of the drain water is greater than the supply water, the leaching requirement for using it is increased, thereby making it less effective than supply water. To compute the effective savings, equation 3 was used.

$$Salinity\ Adjustment\ Ratio = 1/(1 + EC_{dw}/EC_{br} - EC_{cw}/EC_{br}) \qquad \textit{Eq. 3}$$

Where:

ECdw = electrical conductivity of the water in the drain
ECbr = maximum allowed electrical conductivity at the bottom of the rootzone
ECcw = electrical conductivity of the canal water

The canal water averaged 1,200 µs/cm during the field work. EC_{br} was estimated at 6,000 µs/cm, requiring a 20 percent leaching fraction. The water balance suggests a leaching fraction of approximately 15 percent average for the valley, so using 6,000 µs/cm discounts the savings a little more than the average would indicate, but is in keeping with safe management practices.

2.4. Field Data Collection

Twenty reaches were identified for full data collection (Table 2). Piezometers were driven below the water table adjacent to the canal and about 50-100 ft down slope from the adjacent open drain at two locations for long reaches and one for short reaches (as shown in Table 2). The cross-sections were surveyed to obtain water surface and ground surface elevation at the piezometers, the canal and the drain as well as distances between features. The flow rate in the open drain for the segment surveyed was measured during the same day the cross-section surveys were completed. The electrical conductivity of the canal water and drain water was also measured at the time of survey. The field record was annotated to record conditions before, and during the survey. In some cases, irrigations on adjacent fields occurred during or shortly before the survey, which could have affected results. When possible, these locations were re-surveyed. If not, the effect of the irrigation was considered in data interpretation. Keller-Bliesner Engineering was assisted in field data collection by IID staff from the Irrigation Management and Monitoring Unit (IMMU), who measured drain flow and assisted in the

installation of the piezometers. The first round of field work was completed during the first two weeks of September, 2006.

After assessing the field data and deriving a solution, a second round of field data was collected between October 30 and November 1, 2006. The additional sites discussed in Section 2.1 were investigated at the reconnaissance level. The electrical conductivity of the drain water was measured and the flows estimated with rudimentary depth and velocity measurement. No elevation surveys were completed. Locations of the nearest three-phase power line to each planned pumping site were also recorded in the GIS database during this time. These data were collected to estimate savings potential and compute costs on these additional sites.

Table 2. Field Survey Locations

Reach	Reach ID	Cross-Sections Surveyed
EHL Lat 12 to EHL Lat 13	12	2
EHL Lat 13 to EHL Lat 14	13	2
Pampas to Peach	17	2
Peach to Plum	18	2
Pomelo to Pepper	22	2
Pepper to Pansy	23	2
Pansy to Township	24	1
Township to Oat	25	2
Occident to Orchid	29	2
Orchid to Oxalis	30	2
Oleandar to Orita	34	2
Orita to Osage	35	2
Moss to Magnolia	38	2
Magnolia to Mesquite	39	2
Mesquite to Maple	40	2
Maple to Mullen	41	2
Munyon to Mulberry	44	2
Mulberry to Malva 1	45	2
Malva 1 to Malva 2	46	1
Malva 2 to Mayflower	47	2

2.5. Designs and Cost Estimates

Individual detailed designs were not completed for each site. To determine feasibility, a typical design was completed and then scaled to each individual site, based on the conditions at that site. As the analysis shows, buried drainpipes are not needed, because essentially all of the recoverable drain flow is being intercepted by the existing open drains. Therefore, the process described here is based on installation of pumping plants and return pipelines for the open drain. For each site, the following conditions were assessed:

- Volume of water to be recovered annually
- Design pumping rate, cfs, to capture the variability in discharge over time

- Total dynamic head
- Distance from pump location to the canal
- Requirements for a check structure to control drain water elevation (some sites already have a check structure)
- Distance to nearest three-phase power line

While the typical design sets the overall configuration, pump size, number of pumps and motor horsepower were determined for each individual location. For sites that had full design information, total dynamic head is that actually required at the site. For those with no survey data (the added 12 reaches and nine systems), the average pumping lift was assumed. Each site receives a cost allocation for automatically cleaned trash screening to handle the expected trash load.

Capital costs were estimated using the 2006 unit costs in Table 3. Also shown is the assumed life of the component. Annualized capital cost was computed using the stated life, amortizing the cost using a 4 percent inflation free interest rate.

3. Findings

3.1. Seepage Analysis

Table 4 summarizes the results of the field investigation for the 20 reaches included in the detailed study. Plots of the water surface profiles for each study appear in Attachment 1. An examination of the plots leads to the conclusion that the existing open drains are very effective in collecting the existing canal seepage as nearly all of the down slope ground water profiles slope toward the drain or are flat. One of the profiles in Reaches 18, 35, 40, 41 and 46 slope away from the drain, but not steeply. Using the analytical process described in Section 2.2, the volumes of non-intercepted seepage all are very low except for Reach 35 (See Table 4). For this reach, the underflow would be 35 percent for one cross-section and nothing for the other, averaging about 17 percent. The west piezometer of one cross-section did not have standing water at the depth shown, so the reading may not be valid. Reaches 39 and 47 did not have valid down slope piezometer readings due to installation problems or localized confining material, so no determination could be made for these reaches. In general, the losses are minimal and do not justify the additional cost of installing pipe drains.

Examination of the water surface gradient between the canal and the adjacent piezometer assesses the relative sealing of the canal bottom. Where the gradient is steeper than the average gradient, the hydraulic conductivity between the canal and the piezometer is lower than the hydraulic conductivity in the general vicinity, indicating some sealing in the canal. Where the two gradients are nearly the same, it appears that there is little sealing. This assessment is qualitative, because the canal water surface elevation fluctuates more than the water surface elevation in the piezometer. Accuracy could be improved by tracking and averaging the two water surfaces with time, but this is beyond the scope of this study. Based on the data available, only about one-quarter of the cross-sections show a measurable reduction in hydraulic conductivity at the canal interface. Most have gradients close to the average gradient to the drain, so little sealing in the canal bottom is evident. Table 4 summarizes this assessment by reach.

Table 3. Unit Costs Used for Cost Estimating Purposes

Item	Unit Cost	Life Yrs	Annual Maintenance Percent of Capital
Class 125 PVC Pipe, installed - $/ft			
6" diameter	$8	50	2%
8" diameter	$11	50	2%
10" diameter	$15	50	2%
12" diameter	$20	50	2%
16" diameter	$30	50	2%
24" diameter	$59	50	2%
Misc. fittings for pipeline (% of pipeline cost)	15%	50	2%
Flow meter, check valve and tie-in per pump	$10,600	20	2%
Turbine Pump w/ Electric motor and controls			
5 hp	$8,500	20	5%
7.5 hp	$10,000	20	5%
10 hp	$10,500	20	5%
15 hp	$13,000	20	5%
20 hp	$16,500	20	5%
25 hp	$17,000	20	5%
Check Structure, installed (where required)	$18,000	50	2%
72" diameter pump sump w/ structure for screen (up to 2 pumps per sump)	$40,000	50	2%
Automatic cleaning screen (1 per sump)	$20,000	20	5%
Discharge structure in canal	$18,000	50	2%
Power lines - $/ft (includes 40% contingency for line upgrade)	$27	50	n/a
Connection to power grid per location	$5,000	50	n/a
Engineering (% of capital cost)	20%	50	n/a
Contingency (% of capital cost)	20%	50	n/a
Electrical power cost $/kW demand/year	$27		
$/kWh energy	$0.11		

Table 4. Summary of Detailed Study Findings for 20 Reaches on the East Highline Canal

Reach	Reach ID	Drain Flow cfs	Average HC ft/day	Percent Seepage Intercepted	Canal Sealing?
EHL Lat 12 to EHL Lat 13	12	2.2	46	100%	yes
EHL Lat 13 to EHL Lat 14	13	2.9	92	100%	yes
Pampas to Peach	17	2.2	148	100%	no
Peach to Plum	18	3.1	184	97%	no
Pomelo to Pepper	22	1.8	67	100%	no
Pepper to Pansy[1]	23	0.4	n/a	n/a	no
Pansy to Township	24	0.4	11	100%	no
Township to Oat	25	2.8	70	100%	yes
Occident to Orchid	29	4.8	101	100%	no
Orchid to Oxalis	30	6.0	302	100%	no
Oleandar to Orita	34	2 .1	33	100%	yes
Orita to Osage[2]	35	3 .5	43	83%	no
Moss to Magnolia	38	1.0	33	100%	no
Magnolia to Mesquite[1]	39	1.1	n/a	n/a	no
Mesquite to Maple	40	0.3	12	98%	yes
Maple to Mullen	41	0.3	7	98%	no
Munyon to Mulberry	44	0.8	10	100%	no
Mulberry to Malva 1	45	1.8	73	100%	no
Malva 1 to Malva 2	46	1.1	56	98%	no
Malva 2 to Mayflower[1]	47	1.6	n/a	n/a	no

[1] Missing or faulty piezometer readings

[2] Suspect piezometer reading on one transect. Damp at bottom, but no water. Could be confining soil or plugged piezometer. Reading is anomalously low.

Based on the results of the field investigation and data analysis, the recommended approach is to install pumps on the existing open drains rather than install new drains. This avoids costly drain installation and the environmental consequences that could result from lowering the water table by using pipe drains.

3.2. Seepage Interceptor System Design

A total of 24 seepage interception systems have been designed at locations shown on the map in Attachment 2. Drain discharge has been measured or estimated in the field for each of these systems and electrical conductivity has been measured. Pumping plants have been located at points where drain alignment diverges from the canal alignment. This typically occurs at a junction point with a lateral drain or at the junction of two canal drains as they connect to a lateral drain. In some cases this combines several reaches into one system. The basic design data for the 24 systems are shown in Table 5. Pumping capacity averages almost 20 percent more than the average rate estimated for the year, to account for seasonal discharge variation. Figure 2 shows the average monthly variation in pumping for the DP systems for 1997, 1998, 2004 and 2005, the available pumping data that formed the basis for adjusting the September measurements to peak rates and annual volumes. All flow values are based on a one-time spot measurement for each drain. Prior to final design, flow monitoring over a longer period of time

is recommended. This will refine the estimate for the average rate as well as for seasonal variability.

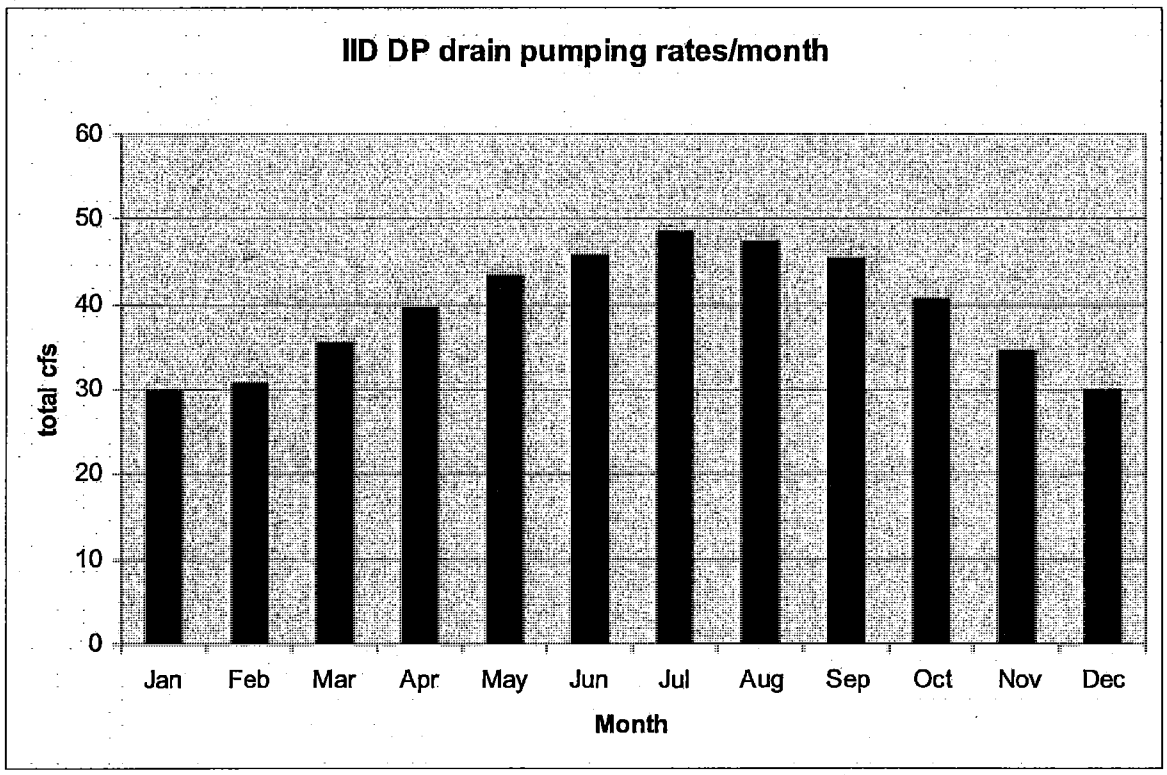


Figure 2. Monthly Distribution of Average Flows for DP Systems, 1997-98, 2004-05

The conceptual design of the seepage interception system pumping plant and canal connection is shown on the drawing in Attachment 3. The orientation of the pump to the drain will vary by configuration. Some installations will require a check structure in the canal to maintain water level control for the pumping plant. The drawing shows a single pump per sump. Up to two pumps per sump are allowed, similar to the present drainpipe systems. One location has four pumps requiring two sumps. Each system includes provisions for a traveling trash screen, because the trash load in the drains can be high. Pipeline length was measured from the 2005 aerial photographs in the GIS.

A GIS coverage has been assembled showing the general pump locations and pipeline lengths. Three-phase power lines have also been located in proximity to the pumping plant to compute power line construction requirements. The larger plants may require line upgrades to serve the power needs, so a 40 percent contingency has been added to the power line costs to cover this uncertainty. Table 6 lists the horsepower requirements, number of pumps per site, pump capacity, pipeline length and diameter, power line length for each system and the requirements for drain check structures. Minimum pump size is 5 hp and each pump size was rounded up to the next largest size to prevent overloading.

Table 5. Summary of Design Conditions for 24 Seepage Interceptor Systems

Drain	Reaches	Main Canal	Electrical Conductivity µs/cm	Salinity Multiplier	Design Discharge cfs	Net Annual Volume AF
Holtville Main	12, 13S	EHL	1,107	1.00	4.38	2,580
14 drain	13 N, 14	EHL	1,200	1.00	4.40	2,590
Pampas	15, 16	EHL	1,275	0.99	3.42	1,997
Holtville 1-3	17, 18, 19, 20, 21, 22, 23	EHL	1,186	0.99	9.98	5,822
Township	24, 25	EHL	1,180	0.99	3.38	1,972
Holtville 6-7	28, 29, 30, 31, 32, 33	EHL	1,702	0.92	16.85	9,134
Orita	34, 35, 36	EHL	1,650	0.93	6.01	3,291
Moss	38	EHL	2,210	0.86	1.06	538
Magnolia	39	EHL	2,390	0.83	1.22	596
Mesquite	40	EHL	1,550	0.94	0.35	194
Maple	41	EHL	4,340	0.66	0.33	129
Myrtle	43	EHL	13,000	can't use	0.00	0
Munyon	44	EHL	3,550	0.72	0.81	345
Mulberry	45	EHL	1,350	0.97	1.93	1,100
Malva 1	46	EHL	1,440	0.96	1.18	666
Malva 2	47	EHL	1,550	0.94	1.71	948
Holtville 2C	n/a	EHL	1,480	0.96	1.83	1,154
Warren 2	n/a	EHL	1,377	0.97	1.10	704
Verde 2	n/a	EHL	1,645	0.93	3.30	2,023
Verde 4	n/a	EHL	1,500	0.95	2.20	1,380
Verde & Mesa	n/a	AAC	1,320	0.98	2.20	1,421
Fig & Fig 1	n/a	WSM	1,679	0.93	5.50	3,355
Dixie 3 & 3B	n/a	WSM	1,700	0.92	0.55	334
Dixie 2	n/a	WSM	1,780	0.91	2.20	1,321
Dixie 4	n/a	WSM	1,820	0.91	2.20	1,313
Average/Total			1,519	0.95	78.10	44,905

Table 6. Summary of Pumping Plant Design Conditions

Interceptor System	Total HP	No. Pumps	Pump Capacity gpm	Pipeline Length ft	Pipeline Diameter inches	Power Line Length ft	Drain Check Required
Holtville Main	15	1	1,970	380	16	300	yes
14 drain	15	1	1,970	520	16	3,100	yes
Pampas	15	1	1,540	1,150	16	3,600	yes
Holtville 1-3	50	2	2,240	2,620	24	7,300	no
Township	15	1	1,520	370	13	5,300	no
Holtville 6-7	100	4	1,890	1,960	29	15,080	yes
Orita	20	2	1,350	170	16	200	yes
Moss	5	1	480	570	8	500	yes
Magnolia	8	1	550	910	8	3,500	yes
Mesquite	5	1	160	840	6	3,500	yes
Maple	5	1	150	500	6	3,200	no
Myrtle	0	1	0	810	6	0	yes
Munyon	5	1	360	640	8	3,300	no
Mulberry	8	1	860	780	10	3,400	no
Malva 1	5	1	530	520	8	2,500	yes
Malva 2	8	1	770	730	10	2,000	no
Holtville 2C	8	1	820	170	8	100	no
Warren 2	5	1	490	190	10	3,800	no
Verde 2	15	1	1,480	300	16	4,800	yes
Verde 4	10	1	990	170	8	1,620	no
Verde & Mesa	10	1	990	540	12	1,670	yes
Fig & Fig 1	20	2	1,230	310	16	1,120	yes
Dixie 3 & 3B	5	1	250	230	6	3,580	yes
Dixie 2	10	1	990	700	16	4,840	no
Dixie 4	10	1	990	270	16	700	no
Average/Total	370	31	24,570	16,350		79,010	

3.3. Seepage Interceptor Cost Summary

The costs for each system are summarized in Table 7. Total savings potential, discounted for salt concentration, is estimated at 44,900 AFY at an average cost of $15 per acre-foot. There are a few systems that are significantly more expensive than the average, due to very small flow rates, elevated salt levels for a reduction in effective savings and somewhat larger costs in some cases. Figure 3 displays the incremental and average project cost in order of priority from least to greatest cost per acre-foot of conserved water. Cost begins to rise sharply at a cumulative savings of about 42,000 AFY. A savings of 40,000 acre-feet (AF) can be achieved for an average cost under $13 per acre-foot.

Table 7. Cost Summary for Seepage Interceptor Systems

Interceptor System	Total Cost	Annual Capital	Annual Power	Annual O&M	Total Annual	Savings AFY	Cost $/AF
Holtville Main	$203,900	$10,669	$7,964	$3,640	$22,274	2,580	$9
14 drain	$316,400	$15,907	$9,296	$3,735	$28,938	2,590	$11
Pampas	$365,300	$18,184	$7,399	$4,164	$29,747	1,997	$15
Holtville 1-3	$719,400	$35,523	$29,171	$7,855	$72,549	5,822	$12
Township	$324,300	$16,276	$8,864	$3,191	$28,331	1,972	$14
Holtville 6-7	$1,127,800	$56,564	$51,645	$12,615	$120,825	9,134	$13
Orita	$214,800	$11,678	$11,091	$4,109	$26,878	3,291	$8
Moss	$193,900	$10,082	$2,312	$3,304	$15,699	538	$29
Magnolia	$294,600	$14,809	$3,026	$3,467	$21,302	596	$36
Mesquite	$287,200	$14,427	$826	$3,318	$18,571	194	$96
Maple	$248,200	$12,611	$676	$2,892	$16,180	129	$126
Myrtle							
Munyon	$256,200	$12,983	$1,674	$2,963	$17,620	345	$51
Mulberry	$269,100	$13,621	$4,235	$3,147	$21,003	1,100	$19
Malva 1	$254,600	$12,908	$2,622	$3,292	$18,821	666	$28
Malva 2	$224,700	$11,557	$3,608	$3,129	$18,295	948	$19
Holtville 2C	$151,200	$8,136	$4,591	$2,916	$15,643	1,154	$14
Warren 2	$264,700	$13,377	$2,619	$2,864	$18,860	704	$27
Verde 2	$336,600	$16,846	$7,919	$3,586	$28,351	2,023	$14
Verde 4	$198,700	$10,361	$5,762	$2,941	$19,064	1,380	$14
Verde & Mesa	$239,700	$12,266	$5,482	$3,503	$21,252	1,421	$15
Fig & Fig 1	$249,800	$13,307	$13,729	$4,205	$31,241	3,355	$9
Dixie 3 & 3B	$281,500	$14,160	$1,358	$3,201	$18,718	334	$56
Dixie 2	$328,200	$16,387	$5,339	$3,373	$25,099	1,321	$19
Dixie 4	$180,200	$9,497	$5,273	$3,080	$17,850	1,313	$14
Total/average	$7,531,000	$382,139	$196,479	$94,490	$673,108	44,905	$15

One additional system, Dixie 1, was identified late as a potential candidate and has not been checked in the field data collection efforts. From its length and mapped soil permeability, it should produce between 1,500 and 2,000 AFY at a cost below the average. However, the water quality is unknown. If additional system savings are needed, this location should be investigated.

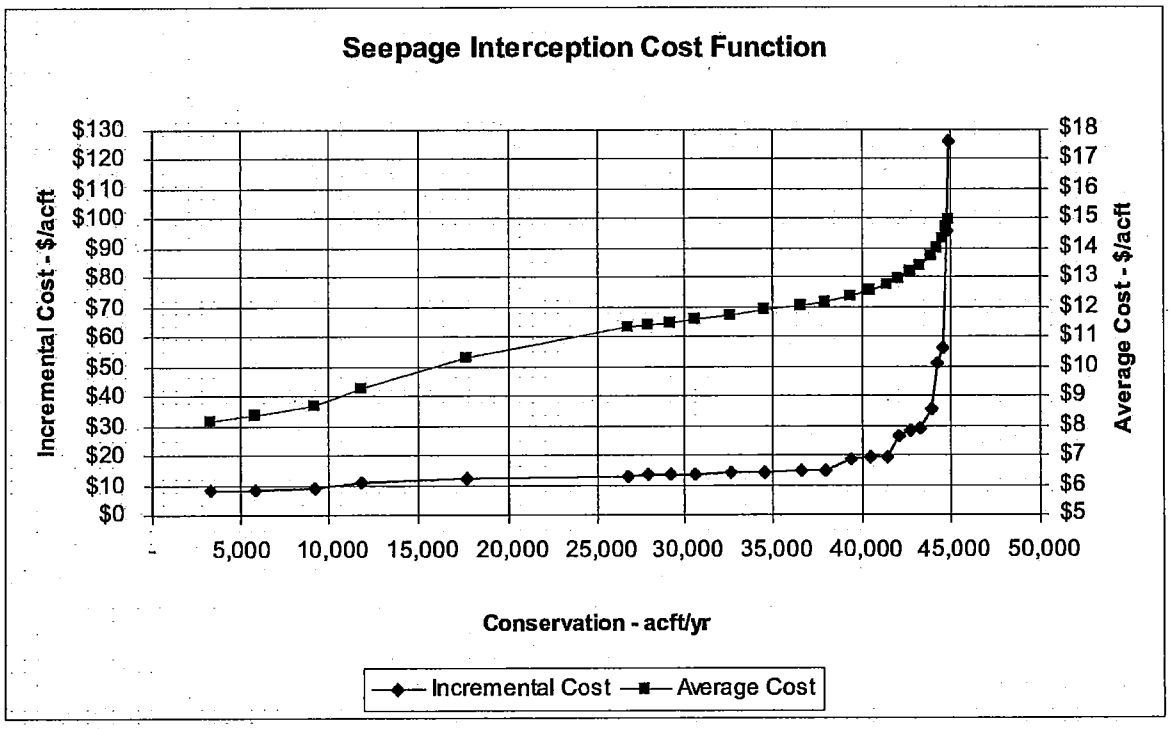


Figure 3. Incremental and Average Cost Curves for Seepage Interceptor Systems

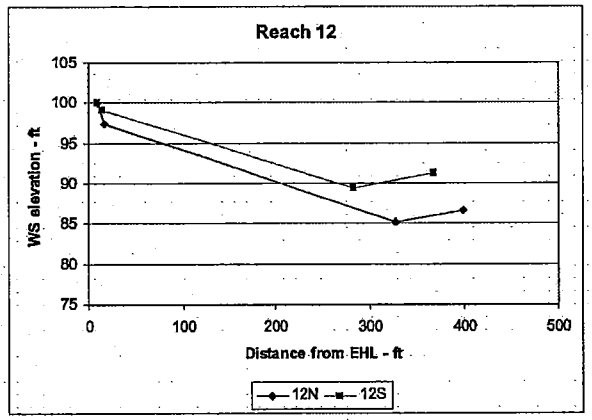
4. Summary and Recommendations

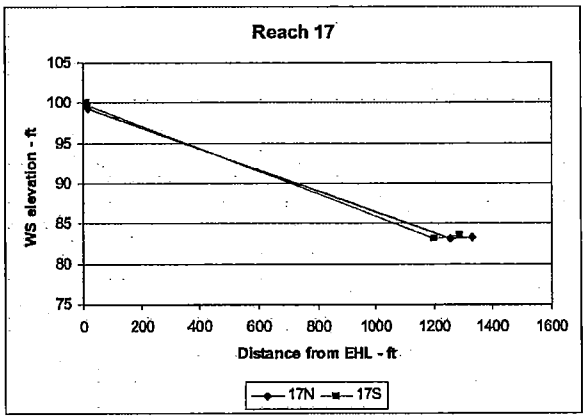
The best solution for interception of seepage from unlined main canals is to install pumping stations near the ends of selected existing parallel open drains. Twenty-four individual systems have been designed with a total recovery capacity of 44,900 AFY. The total annual cost to recover this water is estimated to be $15 per acre-foot. By reducing the objective to 40,000 AF and eliminating the most expensive systems, the cost drops to under $13 per acre-foot. For planning purposes, however, it is recommended that a cost of $15 per acre-foot be used with a recovery potential of 40,000 AF. This provides additional contingency, which is appropriate given the level of analysis and data limitations.

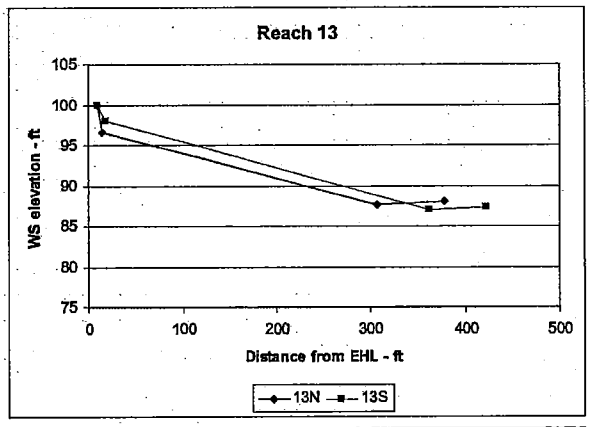
Before proceeding to design for these projects, some additional field data collection is recommended. It would be best to establish a flow recording site at or near each of these drain locations and record drain flow for at least 90 days to improve the yield estimate. Further, it is recommended that electrical conductivity readings be made twice monthly for at least three months at each of the locations to improve the reliability of the calculation that discounts the savings for the effect of increased salt load. It is also recommended that the Dixie 1 drain be investigated for flow and water quality for potential inclusion in the program.

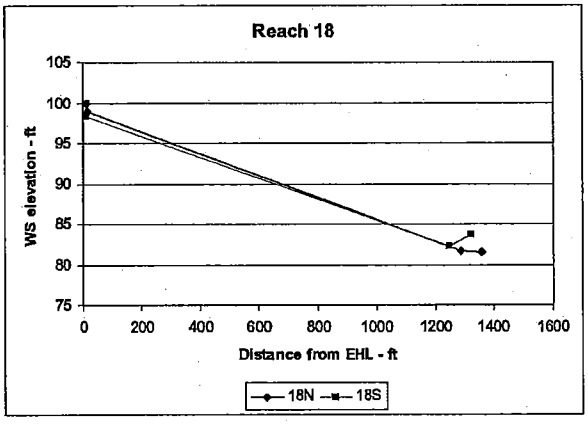
Finally, a few of the drains have fields up slope from the drain and there is potential for tail water from these fields to enter the drain above the pumping plant. If this is objectionable, these fields could be encouraged to participate in the on-farm conservation plan with tail water recovery systems or other means of reducing or eliminating tail water. Additional conservation would result.

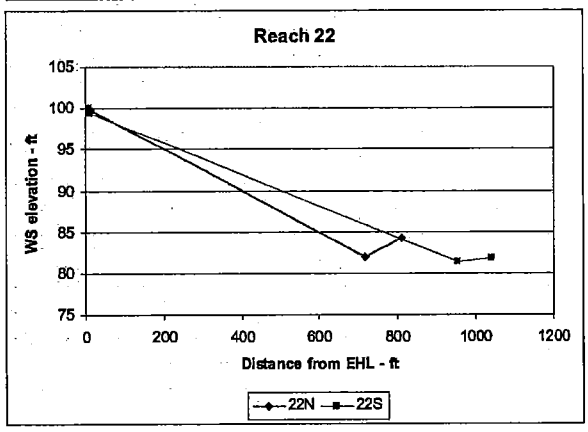
Attachment 1
Water Surface Profile Graphs for 19 Reaches
Along the East Highline Canal from Lateral 14 to Malva 2
Surveys Completed September 2006

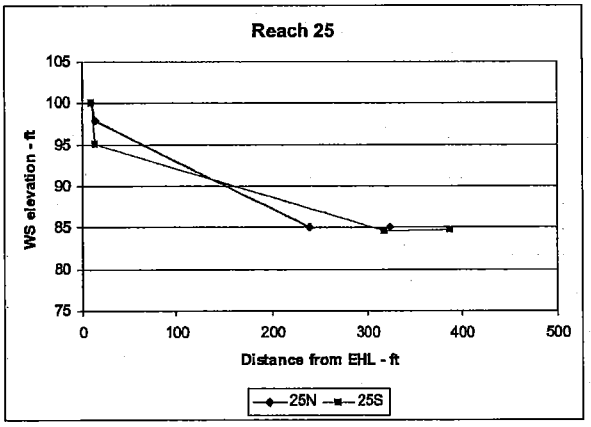

Reach 12
WS elevation - ft
105
100
95
90
85
80
75
0
100
200
300
400
500
Distance from EHL - ft
12N
12S

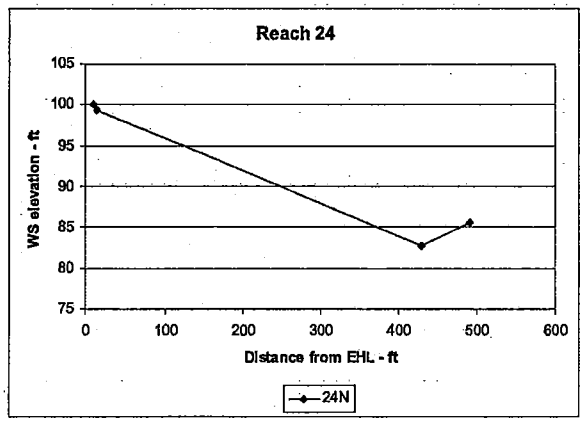

Reach 17
WS elevation - ft
105
100
95
90
85
80
75
0
200
400
600
800
1000
1200
1400
1600
Distance from EHL - ft
17N
17S

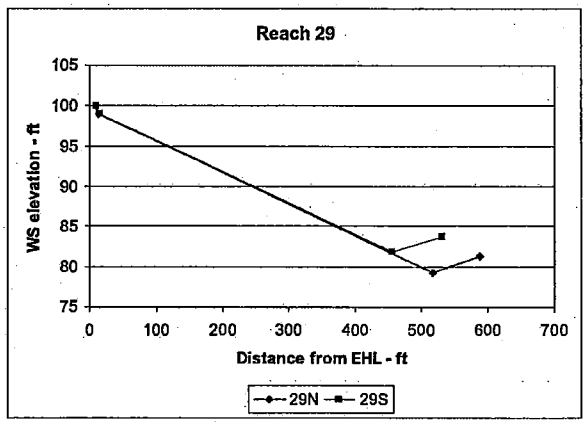

Reach 13
WS elevation - ft
105
100
95
90
85
80
75
0
100
200
300
400
500
Distance from EHL - ft
13N
13S

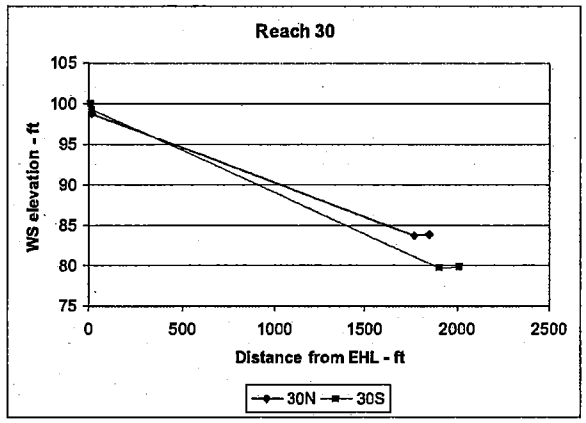

Reach 18
WS elevation - ft
105
100
95
90
85
80
75
0
200
400
600
800
1000
1200
1400
1600
Distance from EHL - ft
18N
18S

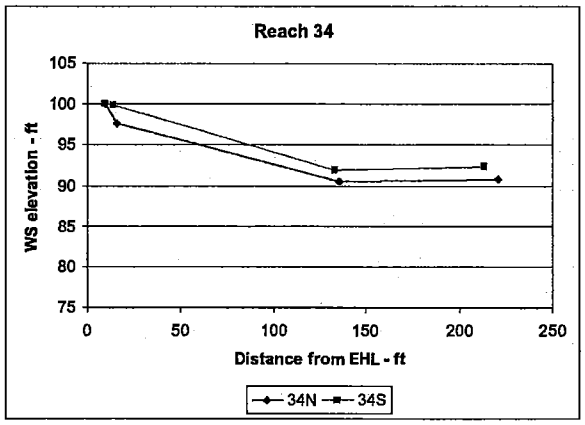

Reach 22
WS elevation - ft
105
100
95
90
85
80
75
0
200
400
600
800
1000
1200
Distance from EHL - ft
22N
22S

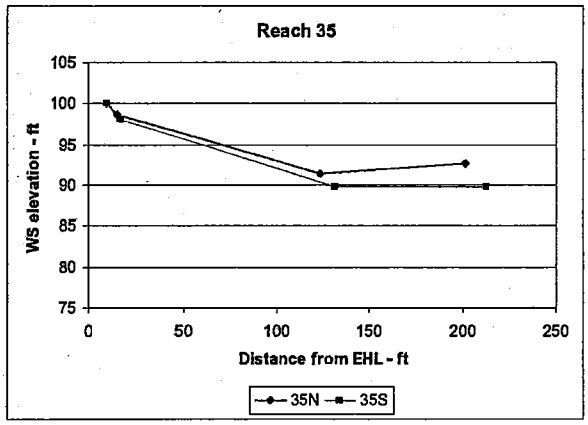

Reach 25
WS elevation - ft
105
100
95
90
85
80
75
0
100
200
300
400
500
Distance from EHL - ft
25N
25S

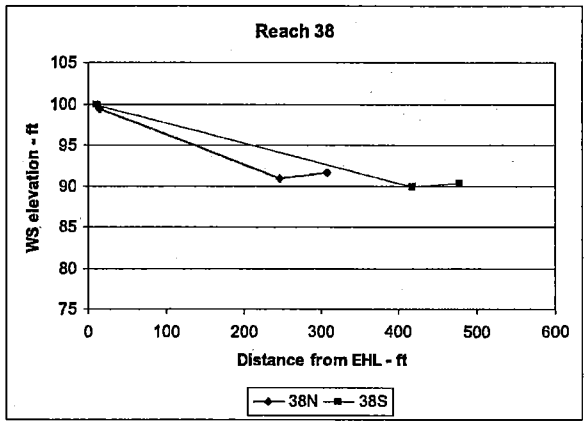

Reach 24
WS elevation - ft
105
100
95
90
85
80
75
0
100
200
300
400
500
600
Distance from EHL - ft
24N

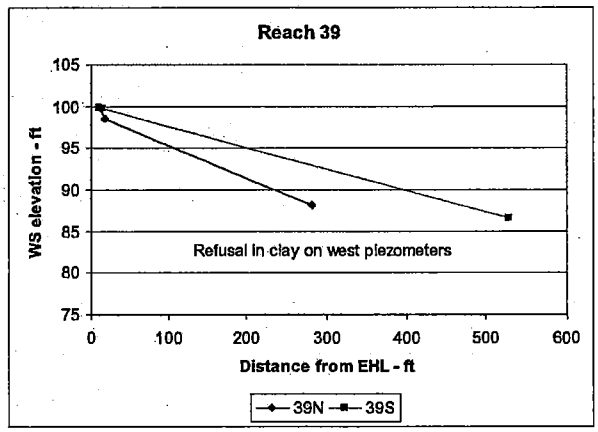

Reach 29
WS elevation - ft
105
100
95
90
85
80
75
0
100
200
300
400
500
600
700
Distance from EHL - ft
29N
29S

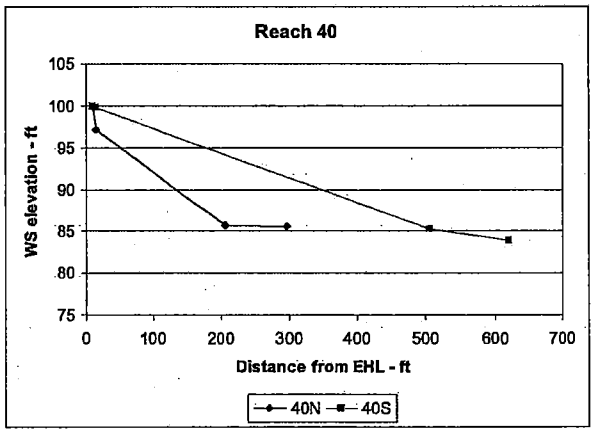

Reach 30
WS elevation - ft
105
100
95
90
85
80
75
0
500
1000
1500
2000
2500
Distance from EHL - ft
30N
30S

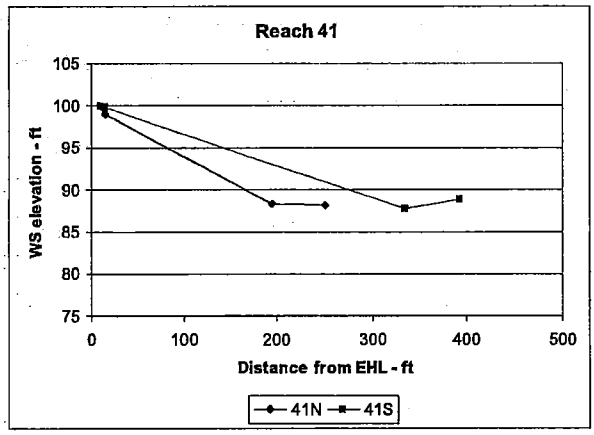

Reach 34
WS elevation - ft
105
100
95
90
85
80
75
0
50
100
150
200
250
Distance from EHL - ft
34N
34S

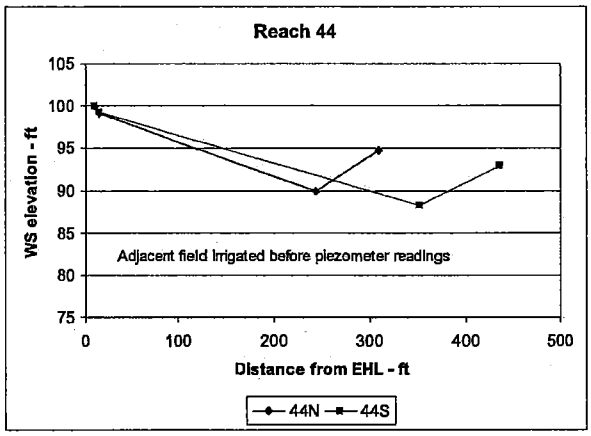

Reach 35
WS elevation - ft
105
100
95
90
85
80
75
0
50
100
150
200
250
Distance from EHL - ft
35N
35S

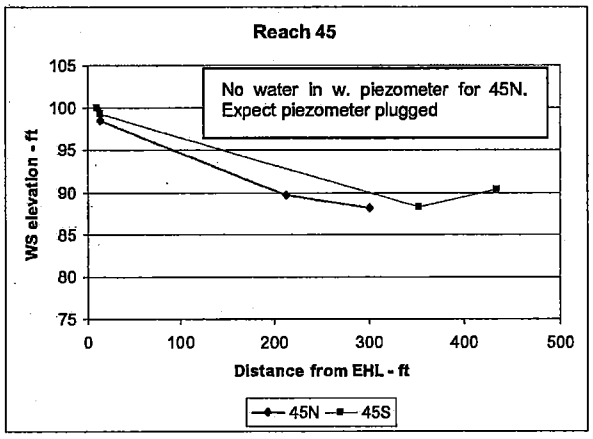

Reach 38
WS elevation - ft
105
100
95
90
85
80
75
0
100
200
300
400
500
600
Distance from EHL - ft
38N
38S

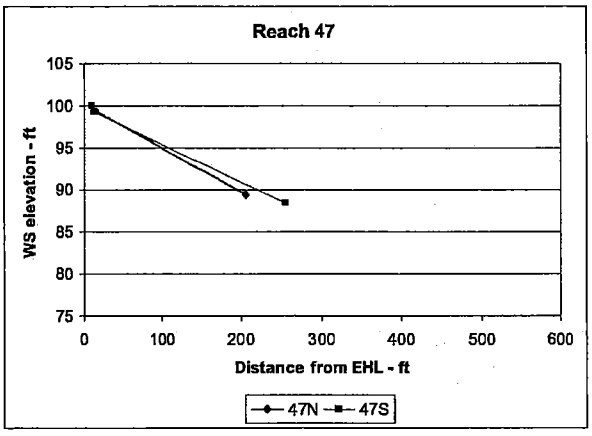

Reach 39
WS elevation - ft
Distance from EHL - ft
Refusal in clay on west piezometers
39N
39S

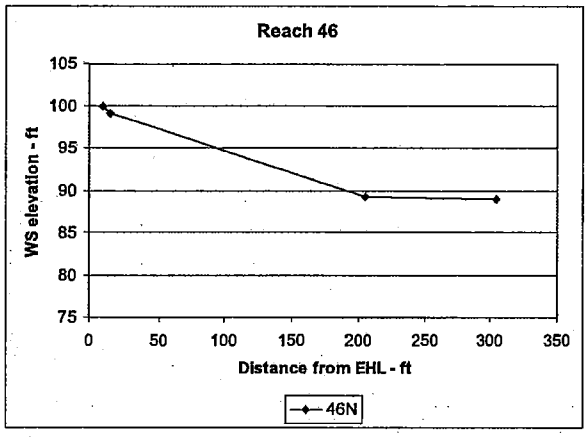

Reach 40
WS elevation - ft
Distance from EHL - ft
40N
40S

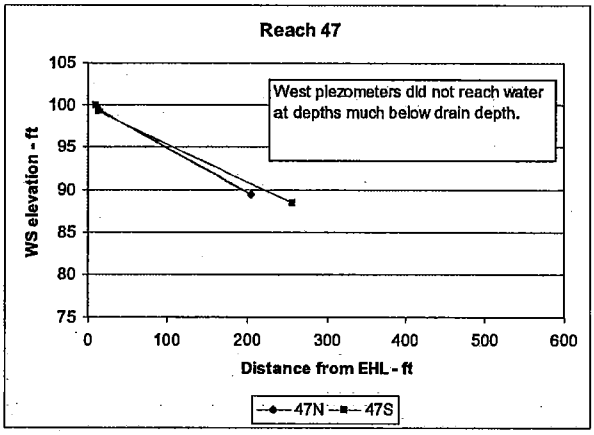

Reach 41
WS elevation - ft
Distance from EHL - ft
41N
41S


Reach 44
WS elevation - ft
Adjacent field irrigated before piezometer readings
Distance from EHL - ft
44N
44S


Reach 45
No water in w. piezometer for 45N.
Expect piezometer plugged
WS elevation - ft
Distance from EHL - ft
45N
45S

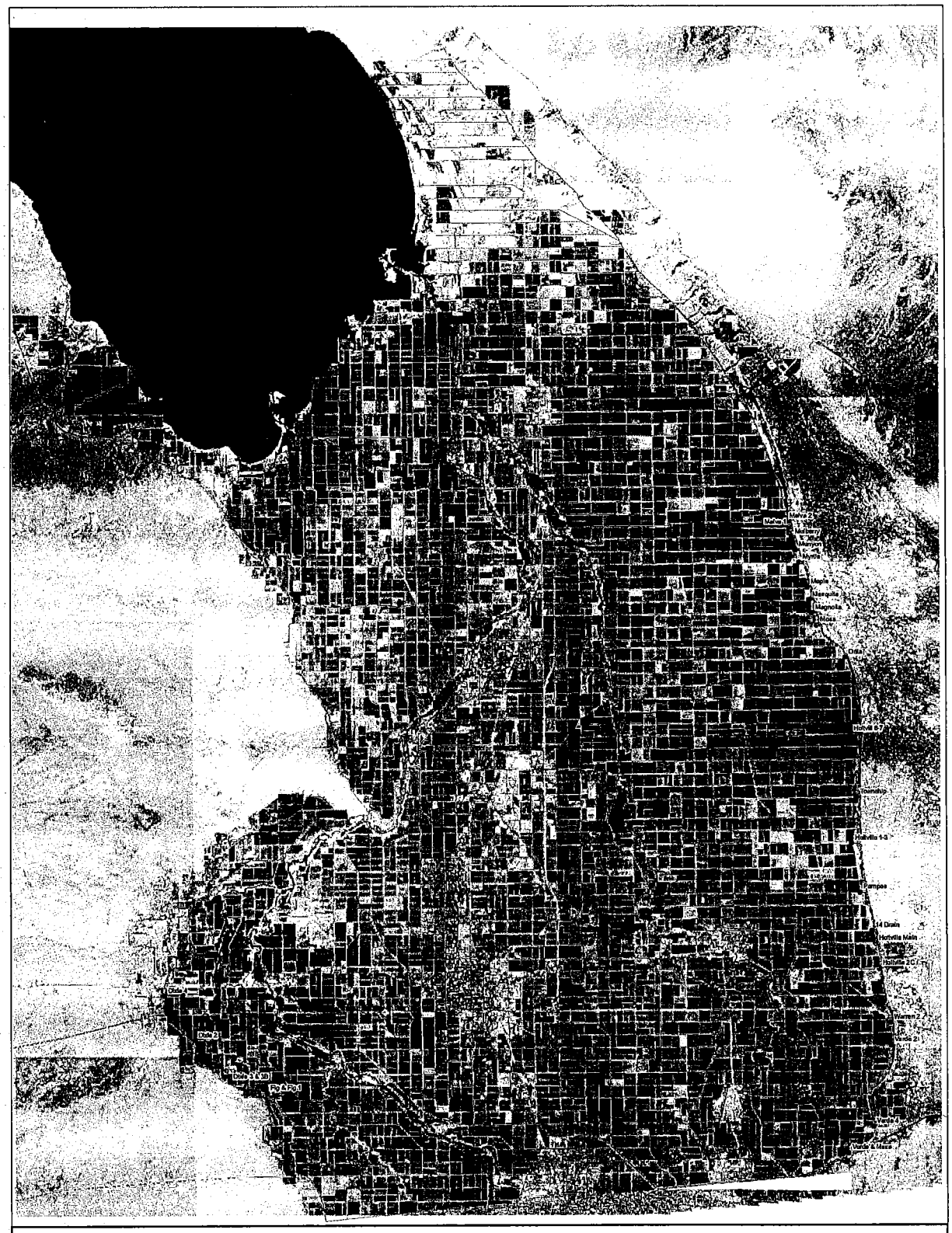

Reach 47
WS elevation - ft
Distance from EHL - ft
47N
47S


Reach 46
WS elevation - ft
105
100
95
90
85
80
75
0
50
100
150
200
250
300
350
Distance from EHL - ft
46N


Reach 47
West piezometers did not reach water at depths much below drain depth.
WS elevation - ft
105
100
95
90
85
80
75
0
100
200
300
400
500
600
Distance from EHL - ft
47N
47S

Attachment 2
Seepage Interceptor Pump Locations Map

(E-size drawing in pocket)



IID Seepage Recovery
Interceptor Pump Location

Legend

- 3 phase power locations
- Interceptor pump
- Interceptor pipeline

Canals

Lining Type

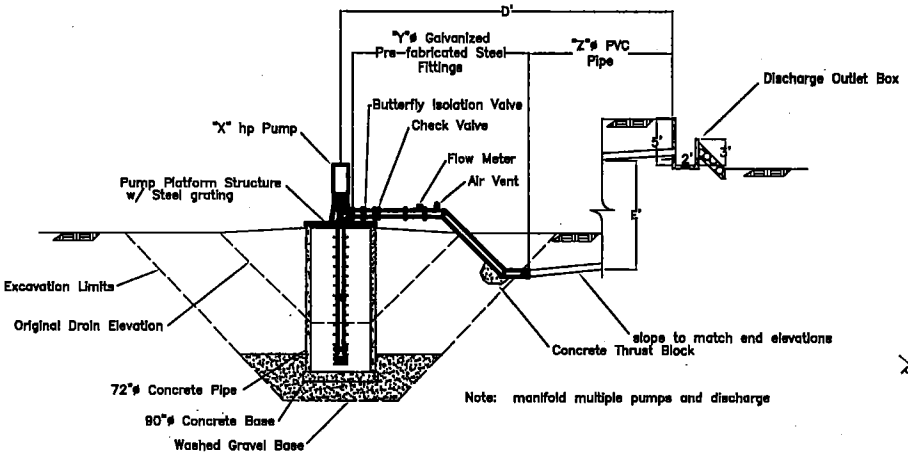
- Lined
- Piped
- Unlined

0 1 2 4 6 Miles

February 27, 2007

Keller-Bliesner Engineering, LLC — Logan, Utah

Attachment 3
Conceptual Pumping Plant Design Drawing

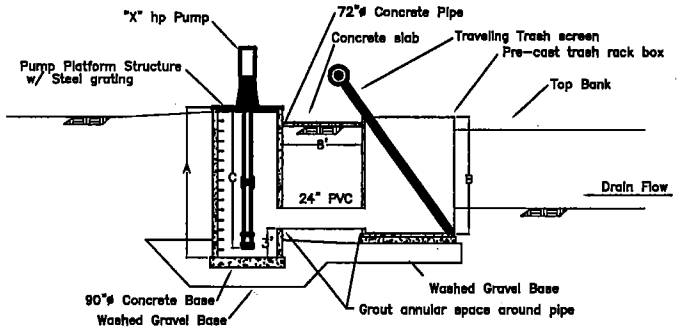


Note: manifold multiple pumps and discharge

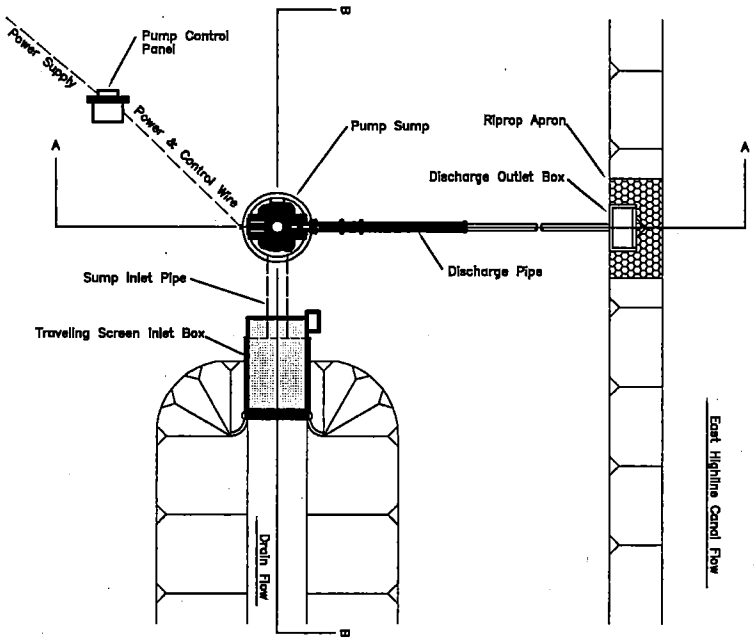
SECTION A–A

Notes:

Dimensions A, B, C, D, E vary by location
Horsepower "X" varies by location from 5 to 25 hp
Up to two pumps may be installed in one sump
Pumps may be manifolded at the discharge head or piped separately to the canal
Details of traveling screen and box subject to manufacturer's requirements



SECTION B–B



LAYOUT

This drawing and the ideas and designs incorporated herein are specific to the project and, as an instrument of professional service, are the property of Keller-Bliesner Engineering. They may not be used, in whole or in part, for any purpose without the written consent of Keller-Bliesner Engineering and the project owner.

REV	Revisions	Date	Design	Draw	Check

REV	Revisions	Date	Design	Draw	Check

Status: For Review
Designed: RDS
Drawn: MI
Checked: RDS
Approved:
File Name: IC-D100.dwg

Scale = 1:

Coordinate System: n/a
Datum: n/a
Survey Data Source: Keller-Bliesner

Keller-Bliesner Engineering
Irrigation & Water Resources
97 N. Center
Logan, Utah 84321

Imperial Irrigation District
East Highline Canal Seepage Recovery
Conceptual Pumping Plant Design

Job No. XXX
Date: 2/23/07
Sheet 1 of 1
DRAWING NO. D100
REV 0

Appendix B

SB X7-7 Verification Form

WUEdata Entry Exceptions

The data from the tables below will not be entered into WUEdata tables (the tabs for these tables' worksheets are colored **purple**). These tables will be submitted as separate uploads, in Excel, to WUEdata.

Process Water Deduction

SB X7-7 tables 4-C, 4-C.1, 4-C.2, 4-C.3, 4-C.4 and 4-D A supplier that will use the process water deduction will complete the appropriate tables in Excel, submit them as a separate upload to the WUE data tool, and include them in its UWMP.

Target Method 2

SB X7-7 tables 7-B, 7-C, and 7-D

A supplier that selects Target Method 2 will contact DWR (gwen.huff@water.ca.gov) for SB X7-7 tables 7-B, 7-C, and 7-D.

Target Method 4

These tables are only available online at http://www.dwr.water.ca.gov/wateruseefficiency/sb7/committees/urban/u4/ptm4.cfm A supplier that selects Target Method 4 will save the tables from the website listed above, complete the tables, submit as a separate upload to WUE data, and include them with its UWMP.

SB X7-7 Table 0: Units of Measure Used in UWMP* *(select one from the drop down list)*
Million Gallons
**The unit of measure must be consistent with Table 2-3*
NOTES:

SB X7-7 Table-1: Baseline Period Ranges			
Baseline	**Parameter**	**Value**	**Units**
10- to 15-year baseline period	2008 total water deliveries	3,122	Million Gallons
	2008 total volume of delivered recycled water	-	Million Gallons
	2008 recycled water as a percent of total deliveries	0.00%	Percent
	Number of years in baseline period[1, 2]	10	Years
	Year beginning baseline period range	2001	
	Year ending baseline period range[3]	2010	
5-year baseline period	Number of years in baseline period	5	Years
	Year beginning baseline period range	2003	
	Year ending baseline period range[4]	2007	

[1] If the 2008 recycled water percent is less than 10 percent, then the first baseline period is a continuous 10-year period. If the amount of recycled water delivered in 2008 is 10 percent or greater, the first baseline period is a continuous 10- to 15-year period. [2] The Water Code requires that the baseline period is between 10 and 15 years. However, DWR recognizes that some water suppliers may not have the minimum 10 years of baseline data.

[3] The ending year must be between December 31, 2004 and December 31, 2010.

[4] The ending year must be between December 31, 2007 and December 31, 2010.

NOTES:

SB X7-7 Table 2: Method for Population Estimates	
Method Used to Determine Population (may check more than one)	
☑	**1. Department of Finance** (DOF) DOF Table E-8 (1990 - 2000) and (2000-2010) and DOF Table E-5 (2011 - 2015) when available
☐	**2. Persons-per-Connection Method**
☐	**3. DWR Population Tool**
☐	**4. Other** DWR recommends pre-review
NOTES:	

SB X7-7 Table 3: Service Area Population		
Year		**Population**
10 to 15 Year Baseline Population		
Year 1	2001	22,052
Year 2	2002	22,095
Year 3	2003	21,881
Year 4	2004	22,217
Year 5	2005	22,381
Year 6	2006	23,601
Year 7	2007	23,443
Year 8	2008	24,157
Year 9	2009	24,476
Year 10	2010	24,937
Year 11		
Year 12		
Year 13		
Year 14		
Year 15		
5 Year Baseline Population		
Year 1	2003	21,881
Year 2	2007	22,217
Year 3	2008	22,381
Year 4	2009	23,601
Year 5	2010	23,443
2015 Compliance Year Population		
2015		26,273
NOTES: Population information taken from Dept. of Finance table E-8 for 2000-2010 and table E-5 for 2015.		

SB X7-7 Table 4: Annual Gross Water Use *								
Baseline Year *Fm SB X7-7 Table 3*		**Volume Into Distribution System** *This column will remain blank until SB X7-7 Table 4-A is completed.*	**Deductions**					**Annual Gross Water Use**
			Exported Water	**Change in Dist. System Storage** (+/-)	**Indirect Recycled Water** *This column will remain blank until SB X7-7 Table 4-B is completed.*	**Water Delivered for Agricultural Use**	**Process Water** *This column will remain blank until SB X7-7 Table 4-D is completed.*	
10 to 15 Year Baseline - Gross Water Use								
Year 1	2001	2,546	-	-	-		-	2,546
Year 2	2002	2,662	-	-	-		-	2,662
Year 3	2003	2,880	-	-	-		-	2,880
Year 4	2004	3,011	-	-	-		-	3,011
Year 5	2005	2,863	-	-	-		-	2,863
Year 6	2006	3,075	-	-	-		-	3,075
Year 7	2007	3,114	-	-	-		-	3,114
Year 8	2008	3,121	-	-	-		-	3,121
Year 9	2009	2,878	-	-	-		-	2,878
Year 10	2010	2,878	-	-	-		-	2,878
Year 11	0	-			-		-	-
Year 12	0	-			-		-	-
Year 13	0	-			-		-	-
Year 14	0	-			-		-	-
Year 15	0	-			-		-	-
10 - 15 year baseline average gross water use								**2,903**
5 Year Baseline - Gross Water Use								
Year 1	2003	2,880	-	-	-		-	2,880
Year 2	2007	3,011	-	-	-		-	3,011
Year 3	2008	2,863	-	-	-		-	2,863
Year 4	2009	3,075	-	-	-		-	3,075
Year 5	2010	3,114	-	-	-		-	3,114
5 year baseline average gross water use								**2,989**
2015 Compliance Year - Gross Water Use								
2015		1,538	-		-		-	**1,538**

* NOTE that the units of measure must remain consistent throughout the UWMP, as reported in Table 2-3

NOTES:

SB X7-7 Table 4-A: Volume Entering the Distribution System(s)

Complete one table for each source.

Name of Source	IMPERIAL IRRIGATION DISTRICT
This water source is:	
☐	The supplier's own water source
☑	A purchased or imported source

Baseline Year *Fm SB X7-7 Table 3*		Volume Entering Distribution System	Meter Error Adjustment* *Optional (+/-)*	Corrected Volume Entering Distribution System
10 to 15 Year Baseline - Water into Distribution System				
Year 1	2001	2,546		2,546
Year 2	2002	2,662		2,662
Year 3	2003	2,880		2,880
Year 4	2004	3,011		3,011
Year 5	2005	2,863		2,863
Year 6	2006	3,075		3,075
Year 7	2007	3,114		3,114
Year 8	2008	3,121		3,121
Year 9	2009	2,878		2,878
Year 10	2010	2,878		2,878
Year 11	0			-
Year 12	0			-
Year 13	0			-
Year 14	0			-
Year 15	0			-
5 Year Baseline - Water into Distribution System				
Year 1	2003	2,880		2,880
Year 2	2007	3,011		3,011
Year 3	2008	2,863		2,863
Year 4	2009	3,075		3,075
Year 5	2010	3,114		3,114
2015 Compliance Year - Water into Distribution System				
2015		1,538		1,538

** Meter Error Adjustment - See guidance in Methodology 1, Step 3 of Methodologies Document*

NOTES:

SB X7-7 Table 4-B: Indirect Recycled Water Use Deduction *(For use only by agencies that are deducting indirect recycled water)*

Baseline Year *Fm SB X7-7 Table 3*		**Surface Reservoir Augmentation**					**Groundwater Recharge**			**Total Deductible Volume of Indirect Recycled Water Entering the Distribution System**
		Volume Discharged from Reservoir for Distribution System Delivery	Percent Recycled Water	Recycled Water Delivered to Treatment Plant	Transmission/ Treatment Loss	Recycled Volume Entering Distribution System from Surface Reservoir Augmentation	Recycled Water Pumped by Utility*	Transmission/ Treatment Losses	Recycled Volume Entering Distribution System from Groundwater Recharge	
10-15 Year Baseline - Indirect Recycled Water Use										
Year 1	2001		-	-	-	-	-	-	-	-
Year 2	2002		-	-	-	-	-	-	-	-
Year 3	2003		-	-	-	-	-	-	-	-
Year 4	2004		-	-	-	-	-	-	-	-
Year 5	2005		-	-	-	-	-	-	-	-
Year 6	2006		-	-	-	-	-	-	-	-
Year 7	2007		-	-	-	-	-	-	-	-
Year 8	2008		-	-	-	-	-	-	-	-
Year 9	2009		-	-	-	-	-	-	-	-
Year 10	2010		-	-	-	-	-	-	-	-
Year 11	0		-	-	-	-	-	-	-	-
Year 12	0		-	-	-	-	-	-	-	-
Year 13	0		-	-	-	-	-	-	-	-
Year 14	0		-	-	-	-	-	-	-	-
Year 15	0		-	-	-	-	-	-	-	-
5 Year Baseline - Indirect Recycled Water Use										
Year 1	2003		-	-	-	-	-	-	-	-
Year 2	2007		-	-	-	-	-	-	-	-
Year 3	2008		-	-	-	-	-	-	-	-
Year 4	2009		-	-	-	-	-	-	-	-
Year 5	2010		-	-	-	-	-	-	-	-
2015 Compliance - Indirect Recycled Water Use										
2015			0%	-	-	-	-	-	-	-

**Suppliers will provide supplemental sheets to document the calculation for their input into "Recycled Water Pumped by Utility". The volume reported in this cell must be less than total groundwater pumped - See Methodology 1, Step 8, section 2.c.*

NOTES: The City of Brawley does not use recycled water.

SB X7-7 Table 4-C: Process Water Deduction Eligibility *(For use only by agencies that are deducting process water) Choose Only One*	
☐	**Criteria 1**- Industrial water use is equal to or greater than 12% of gross water use. Complete SB X7-7 Table 4-C.1
☐	**Criteria 2** - Industrial water use is equal to or greater than 15 GPCD. Complete SB X7-7 Table 4-C.2
☐	**Criteria 3** - Non-industrial use is equal to or less than 120 GPCD. Complete SB X7-7 Table 4-C.3
☐	**Criteria 4** - Disadvantaged Community. Complete SB x7-7 Table 4-C.4
NOTES: Process water is not being deducted, this table will not be filled out	

SB X7-7 Table 4-C.1: Process Water Deduction Eligibility

Criteria 1

Industrial water use is equal to or greater than 12% of gross water use

Baseline Year *Fm SB X7-7 Table 3*		Gross Water Use Without Process Water Deduction	Industrial Water Use	Percent Industrial Water	**Eligible for Exclusion Y/N**
10 to 15 Year Baseline - Process Water Deduction Eligibility					
Year 1	2001	2,546		0%	NO
Year 2	2002	2,662		0%	NO
Year 3	2003	2,880		0%	NO
Year 4	2004	3,011		0%	NO
Year 5	2005	2,863		0%	NO
Year 6	2006	3,075		0%	NO
Year 7	2007	3,114		0%	NO
Year 8	2008	3,121		0%	NO
Year 9	2009	2,878		0%	NO
Year 10	2010	2,878		0%	NO
Year 11	0	-			NO
Year 12	0	-			NO
Year 13	0	-			NO
Year 14	0	-			NO
Year 15	0	-			NO
5 Year Baseline - Process Water Deduction Eligibility					
Year 1	2003	2,880		0%	NO
Year 2	2007	3,011		0%	NO
Year 3	2008	2,863		0%	NO
Year 4	2009	3,075		0%	NO
Year 5	2010	3,114		0%	NO
2015 Compliance Year - Process Water Deduction Eligiblity					
2015		1,538		0%	NO

NOTES: Process water is not being deducted, this table will not be filled out

SB X7-7 Table 4-C.2: Process Water Deduction Eligibility					
Criteria 2 Industrial water use is equal to or greater than 15 GPCD					
Baseline Year *Fm SB X7-7 Table 3*		Industrial Water Use	Population	Industrial GPCD	**Eligible for Exclusion Y/N**
10 to 15 Year Baseline - Process Water Deduction Eligibility					
Year 1	2001		22,052	-	NO
Year 2	2002		22,095	-	NO
Year 3	2003		21,881	-	NO
Year 4	2004		22,217	-	NO
Year 5	2005		22,381	-	NO
Year 6	2006		23,601	-	NO
Year 7	2007		23,443	-	NO
Year 8	2008		24,157	-	NO
Year 9	2009		24,476	-	NO
Year 10	2010		24,937	-	NO
Year 11	0		-		NO
Year 12	0		-		NO
Year 13	0		-		NO
Year 14	0		-		NO
Year 15	0		-		NO
5 Year Baseline - Process Water Deduction Eligibility					
Year 1	2003		21,881	-	NO
Year 2	2007		22,217	-	NO
Year 3	2008		22,381	-	NO
Year 4	2009		23,601	-	NO
Year 5	2010		23,443	-	NO
2015 Compliance Year - Process Water Deduction Eligibility					
2015			26,273	-	NO
NOTES: Process water is not being deducted, this table will not be filled out					

SB X7-7 Table 4-C.3: Process Water Deduction Eligibility							
Criteria 3 Non-industrial use is equal to or less than 120 GPCD							
Baseline Year *Fm SB X7-7 Table 3*		Gross Water Use Without Process Water Deduction *Fm SB X7-7 Table 4*	Industrial Water Use	Non-industrial Water Use	Population *Fm SB X7-7 Table 3*	Non-Industrial GPCD	**Eligible for Exclusion Y/N**
10 to 15 Year Baseline - Process Water Deduction Eligibility							
Year 1	2001	2,546		2,546	22,052	316	NO
Year 2	2002	2,662		2,662	22,095	330	NO
Year 3	2003	2,880		2,880	21,881	361	NO
Year 4	2004	3,011		3,011	22,217	371	NO
Year 5	2005	2,863		2,863	22,381	350	NO
Year 6	2006	3,075		3,075	23,601	357	NO
Year 7	2007	3,114		3,114	23,443	364	NO
Year 8	2008	3,121		3,121	24,157	354	NO
Year 9	2009	2,878		2,878	24,476	322	NO
Year 10	2010	2,878		2,878	24,937	316	NO
Year 11	0	-		-	-		NO
Year 12	0	-		-	-		NO
Year 13	0	-		-	-		NO
Year 14	0	-		-	-		NO
Year 15	0	-		-	-		NO
5 Year Baseline - Process Water Deduction Eligibility							
Year 1	2003	2,880		2,880	21,881	361	NO
Year 2	2007	3,011		3,011	22,217	371	NO
Year 3	2008	2,863		2,863	22,381	350	NO
Year 4	2009	3,075		3,075	23,601	357	NO
Year 5	2010	3,114		3,114	23,443	364	NO
2015 Compliance Year - Process Water Deduction Eligiblity							
2015		1,538		1,538	26,273	160	NO
NOTES: Process water is not being deducted, this table will not be filled out							

SB X7-7 Table 4-C.4: Process Water Deduction Eligibility

Criteria 4

Disadvantaged Community

Use IRWM DAC Mapping tool http://www.water.ca.gov/irwm/grants/resources_dac.cfm

California Median Household Income		Service Area Median Household Income	Percentage of Statewide Average	**Eligible for Exclusion? Y/N**
2015 Compliance Year - Process Water Deduction Eligibility				
2010	$53,046		0%	YES

A "Disadvantaged Community" is a community with a median household income less than 80 percent of the statewide average.

NOTES:

SB X7-7 Table 4-D: Process Water Deduction - Volume						*Complete a separate table for each industrial customer with a process water exclusion*
Name of Industrial Customer		*Industrial Customer 1*				
Baseline Year *Fm SB X7-7 Table 3*		Industrial Customer's Total Water Use	Total Volume Supplied by Water Agency	% of Water Supplied by Water Agency	Customer's Total Process Water Use	Volume of Process Water Eligible for Exclusion for this Customer
10 to 15 Year Baseline - Process Water Deduction						
Year 1	2001					-
Year 2	2002					-
Year 3	2003					-
Year 4	2004					-
Year 5	2005					-
Year 6	2006					-
Year 7	2007					-
Year 8	2008					-
Year 9	2009					-
Year 10	2010					-
Year 11	0					-
Year 12	0					-
Year 13	0					-
Year 14	0					-
Year 15	0					-
5 Year Baseline - Process Water Deduction						
Year 1	2003					-
Year 2	2007					-
Year 3	2008					-
Year 4	2009					-
Year 5	2010					-
2015 Compliance Year - Process Water Deduction						
2015						-

NOTES: Process water is not being deducted, this table will not be filled out.

SB X7-7 Table 5: Gallons Per Capita Per Day (GPCD)				
Baseline Year *Fm SB X7-7 Table 3*		Service Area Population *Fm SB X7-7 Table 3*	Annual Gross Water Use *Fm SB X7-7 Table 4*	Daily Per Capita Water Use (GPCD)
10 to 15 Year Baseline GPCD				
Year 1	2001	22,052	2,546	316
Year 2	2002	22,095	2,662	330
Year 3	2003	21,881	2,880	361
Year 4	2004	22,217	3,011	371
Year 5	2005	22,381	2,863	350
Year 6	2006	23,601	3,075	357
Year 7	2007	23,443	3,114	364
Year 8	2008	24,157	3,121	354
Year 9	2009	24,476	2,878	322
Year 10	2010	24,937	2,878	316
Year 11	0	-	-	
Year 12	0	-	-	
Year 13	0	-	-	
Year 14	0	-	-	
Year 15	0	-	-	
10-15 Year Average Baseline GPCD				**344**
5 Year Baseline GPCD				
Baseline Year *Fm SB X7-7 Table 3*		Service Area Population *Fm SB X7-7 Table 3*	Gross Water Use *Fm SB X7-7 Table 4*	Daily Per Capita Water Use
Year 1	2003	21,881	2,880	361
Year 2	2007	22,217	3,011	371
Year 3	2008	22,381	2,863	350
Year 4	2009	23,601	3,075	357
Year 5	2010	23,443	3,114	364
5 Year Average Baseline GPCD				**361**
2015 Compliance Year GPCD				
2015		26,273	1,538	**160**
NOTES:				

SB X7-7 Table 6: Gallons per Capita per Day *Summary From Table SB X7-7 Table 5*	
10-15 Year Baseline GPCD	344
5 Year Baseline GPCD	361
2015 Compliance Year GPCD	160
NOTES:	

SB X7-7 Table 7: 2020 Target Method *Select Only One*		
Target Method		Supporting Documentation
☑	Method 1	SB X7-7 Table 7A
☐	Method 2	SB X7-7 Tables 7B, 7C, and 7D *Contact DWR for these tables*
☐	Method 3	SB X7-7 Table 7-E
☐	Method 4	Method 4 Calculator
NOTES:		

SB X7-7 Table 7-A: Target Method 1 20% Reduction	
10-15 Year Baseline GPCD	**2020 Target GPCD**
344	**275**
NOTES:	

SB X7-7 Table 7-B: Target Method 2	Target
Landscape Water Use	

Tables for Target Method 2 (SB X7-7 Tables 7-B, 7-C, and 7-D) are not included in the SB X7-7 Verification Form, but are still required for water suppliers using Target Method 2. These water suppliers should contact Gwen Huff at (916) 651-9672 or gwen.huff@water.ca.gov

SB X7-7 Table 7-C: Target Method 2 Target CII Water Use
Tables for Target Method 2 (SB X7-7 Tables 7-B, 7-C, and 7-D) are not included in the SB X7-7 Verification Form, but are still required for water suppliers using Target Method 2. These water suppliers should contact Gwen Huff at (916) 651-9672 or gwen.huff@water.ca.gov

SB X7-7 Table 7-D: Target Method 2 Summary
Tables for Target Method 2 (SB X7-7 Tables 7-B, 7-C, and 7-D) are not included in the SB X7-7 Verification Form, but are still required for water suppliers using Target Method 2. These water suppliers should contact Gwen Huff at (916) 651-9672 or gwen.huff@water.ca.gov

SB X7-7 Table 7-E: Target Method 3				
Agency May Select More Than One as Applicable	Percentage of Service Area in This Hydrological Region	Hydrologic Region	"2020 Plan" Regional Targets	Method 3 Regional Targets (95%)
☐		North Coast	137	130
☐		North Lahontan	173	164
☐		Sacramento River	176	167
☐		San Francisco Bay	131	124
☐		San Joaquin River	174	165
☐		Central Coast	123	117
☐		Tulare Lake	188	179
☐		South Lahontan	170	162
☐		South Coast	149	142
☑		Colorado River	211	200
Target *(If more than one region is selected, this value is calculated.)*				**0**

NOTES:

SB X7-7 Table 7-F: Confirm Minimum Reduction for 2020 Target			
5 Year Baseline GPCD *From SB X7-7 Table 5*	Maximum 2020 Target[1]	Calculated 2020 Target[2]	**Confirmed 2020 Target**
361	343	275	**275**

[1] Maximum 2020 Target is 95% of the 5 Year Baseline GPCD [2] 2020 Target is calculated based on the selected Target Method, see SB X7-7 Table 7 and corresponding tables for agency's calculated target.

NOTES:

SB X7-7 Table 8: 2015 Interim Target GPCD		
Confirmed 2020 Target *Fm SB X7-7 Table 7-F*	10-15 year Baseline GPCD *Fm SB X7-7 Table 5*	**2015 Interim Target GPCD**
275	344	**310**
NOTES:		

SB X7-7 Table 9: 2015 Compliance								
Actual 2015 GPCD	2015 Interim Target GPCD	Optional Adjustments *(in GPCD)* Enter "0" if Adjustment Not Used			TOTAL Adjustments	Adjusted 2015 GPCD	2015 GPCD *(Adjusted if applicable)*	**Did Supplier Achieve Targeted Reduction for 2015?**
		Extraordinary Events	Weather Normalization	Economic Adjustment				
160	310	-	-	-	-	160	160	**YES**

NOTES:

Appendix C

Imperial County Land-Use-Element-(2015)

LAND USE ELEMENT
of the Imperial County
GENERAL PLAN

Prepared by:

Planning & Development Services Department
County of Imperial
801 Main St.
El Centro, California 92243-2875
Phone: (442) 265-1736
Fax: (442) 265-1735

JIM MINNICK
Planning & Development Services Director

Approved By:

Board of Supervisors
October 6, 2015

TRACKING SHEET

ACTION	DATE	MO
Adopted by Board of Supervisors	Nov. 9, 1993	MO #18
Revisions adopted by Board of Supervisors	Nov. 19, 1996	MO #11A1
Revisions adopted by Board of Supervisors	Dec. 16, 2003	MO #25
Revisions adopted by Board of Supervisors	Oct. 17, 2006	MO #24
Revisions adopted by Board of Supervisors	Jan. 29, 2008	MO #18
Revisions adopted by Board of Supervisors	October 6, 2015	MO #18b

LAND USE ELEMENT
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IMPERIAL COUNTY GENERAL PLAN
LAND USE ELEMENT

I. INTRODUCTION

A. Preface

As required under California Government Code Section 65302(a) this document represents Imperial County's amended Land Use Plan. This Land Use Element **shall** serve as a guide to the decision makers, staff and the public to address the distribution, general location and extent of uses of land for housing, business, industry, open space, agriculture, and public facilities. This Land Use Element amends and updates the current Land Use Element adopted on November 24, 1998, and any amendments thereto.

The Land Use Element describes existing land uses within the County and the facilities and services which provide the public infrastructure to support these uses. Also stated are Goals and Objectives for future growth, expansion of public facilities, and environmental resource protection; and policies and programs to guide such future growth. A Land Use Plan delineates, at a scale of 1 inch = 2 miles, County areas designated within eight land use categories. A copy of the Land Use Plan is available at the County Planning & Development Services Department, at 801 Main St., El Centro, Ca. 92243 (760)-482-4236.

B. Purpose of the Land Use Element

The primary purpose of the Land Use Element is to identify the goals, policies and standards of the General Plan that will guide the physical growth of Imperial County, including the public facilities necessary to support such growth. It is prepared pursuant to Government Code Section 65302(a) which reads as follows:

> A land use element which designates the proposed general distribution and general location and extent of the uses of the land for housing, business, industry, open space, including agriculture, natural resources, recreation and enjoyment of scenic beauty, education, public buildings and grounds, solid and liquid waste disposal facilities, and other categories of public and private uses of land (see Figure 1). The land use element shall include a statement of the standards of population density and building intensity recommended for the various districts and other territory covered by the plan. The land use element shall identify areas covered by the plan which are subject to flooding and shall be reviewed annually with respect to those areas....

This Element, therefore, is to show in a very general way a range of uses for lands within the County, without projecting when or how a use will be developed. The General Plan and this Element is based in part on a statement of the purpose of Government and Government Plans and on five basic goals adopted by the Board of Supervisors on January 2, 1973. The purpose of Government and, therefore, Government Plans is to help every citizen to secure a better life than would be possible without the efforts of Government in their behalf.

The six basic concepts herewith adopted by the Board in support of the General Plan are:

- Quality of Life.
- Safety for people and property.
- Wide selection of social and economic opportunities.
- Efficient use of natural, human and financial resources.
- Clean air, water and land.
- Quiet, beautiful communities and rural areas.

The intent of the California legislature was and is to provide effective and efficient land uses in an orderly and well planned manner. In keeping with this intent, the County shall use this plan to guide all development in Imperial County and to plan for necessary improvements for public facilities and services.

The intent of the County of Imperial in preparing the Land Use Element is to maintain and promote the economic prominence of agricultural enterprises, determine appropriate urban development centers and encourage their economic development, protect the existing character of rural and recreational communities and areas, and preserve the unique natural and cultural resources of the Imperial Valley as a region.

C. Urban Areas and Community Areas

Urban Areas and Community Areas are General Plan designations which provide for a range of permitted land uses within specific geographic areas of the County.

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For urbanizing areas surrounding incorporated cities, the Previous (prior to 1993) Land Use Plans duplicated the land use planning efforts of the cities and, at times, conflicted with them. Implementation of this Update is intended to include zone reclassification studies for areas adjacent to cities which will be based on the adopted Land Use Plan of each city. County zoning would be changed to reflect residential densities and land use intensities which are at or below that which would be permitted by the city Land Use Plan. For the "urban" unincorporated areas of Heber, Niland, Salton City, Seeley, West Shores and Winterhaven new Land Use Plans were prepared. These may also need updates at various times. Zoning limitations may also be recommended which would limit development where public facilities are presently inadequate to provide an urban level of service; or where premature development would impact continued agricultural use of adjacent property or cause "leapfrog" or "checkerboard" land use patterns.

1. Urban Areas

The Urban Area designation on the Land Use Plan includes areas surrounding the seven incorporated cities; Brawley, El Centro, Westmorland, Holtville, Calipatria, Imperial and Calexico. Urban Areas also include the unincorporated communities of Niland, Heber, Seeley, Winterhaven and West Shores/Salton City (see also Figure 1). These areas are characterized by a full level of urban services, in particular public water and sewer systems, and contain or propose a broad range of residential, commercial, and industrial uses.

It is anticipated that these areas will eventually be annexed or incorporated and should be provided with the full range of public infrastructure normally associated with cities. Therefore, development in these areas, while allowed in the County, any new development shall provide for the extension or development of full urban services such as public sewer and water, drainage improvements, street lights, fire hydrants, and fully improved paved streets with curbs and, in many cases, sidewalks. If located within an urban area, such improvements shall be consistent with City standards as determined by the director. In cases where the Urban area is located in the unincorporated communities (i.e. Heber, Seeley, etc.) improvements shall be consistent with County standards as determined by the Director of Planning & Development Services. Development proposed outside of a designate Urban area shall either require an amendment to an existing Urban area or be designated as a new Specific Plan Area meeting full Urban area improvement standards.

> **Brawley Urban Area –** This (approximately) 9,890 acre area surrounds the incorporated City of Brawley and is generally bounded on the west by the New River, Brandt Road, Kalin Road, Poe Subdivision and State Highway 86, on the north by Ward Road, on the east by Best Road, the Livesely Drain, and a line approximately one-half mile east of Best Road, and on the south by the Rockwood Canal, Mead Road, the Best Canal, Dogwood Road, and Shartz Road.

Calexico Urban Area – This (approximately) 8,302 acre area surrounds the incorporated City of Calexico, with the City of Mexicali, Republic of Mexico, located to the south. The Planning Area is generally bounded on the west by Dogwood Road, on the north by Willoughby Road and Jasper Road, and on the east by Bowker Road and the designated S.P.A.

Calipatria Urban Area – This (approximately) 4,285 acre area surrounds the incorporated City of Calipatria and is generally bounded on the west by Lyerly Road, Bowles Road, Coberly Road, and English Road, on the north by Young Road with an northerly extension to Wilkenson between Coberly and Carrick Roads, on the east by Blair Road and Carrick Road, and on the south by Yocum Road and Bowles Road.

El Centro Urban Area – This (approximately) 14,288 acre area surrounds the incorporated City of El Centro and is generally bounded on the west by Austin Road, on the north by the Central Drain, Dogwood Road, and Villa Road, on the east by State Highway 111, and on the south by Northrup Road (extension), McCabe Road, a line approximately 1,320 feet east of Dogwood Road, and Chick Road.

Heber Urban Area – This (approximately) 1,040 acre area surrounds the unincorporated community of Heber and is served by the Heber Public Utilities District. It is located south of Interstate 8 between the cities of El Centro and Calexico bounded by Farnsworth Lane on the west, Correll Road on the north, Pitzer Road on the east, and Fawcett Road on the south.

Holtville Urban Area – This (approximately) 4,080 acre area surrounds the incorporated City of Holtville. It is bounded on the west by State Highway 115, Zenos Road, and Country Club Road, on the north by Kamm Road, on the east by Towland Road, and on the south by Haven Road, the Ash Main Canal, and Edwards Road for a distance of approximately 3,300 feet east of Orchard Road, thence north to a line 1,320 feet south of Haven Road then east 3,660 feet then north to Haven Road and east to Towland Road.

Imperial Urban Area – This (approximately) 8,480 acre area surrounds the incorporated City of Imperial. It is bounded on the west by Austin Road, on the north by Ralph Road, on the east by Dogwood Road, and on the south by the Central Drain.

Niland Urban Area – This (approximately) 1,290 acre area surrounds the unincorporated community of Niland and is bounded on the west by Nieto Road, on the north by the railroad tracks, and the north line of which is approximately 1,000 feet north of Beal Road, on the east by the extensions of Cuff Road and Memphis Avenue, and on the south by the Noffsinger and Alcott Roads.

Seeley Urban Area – This (approximately) 1,520 acre area surrounds the unincorporated community of Seeley, located west of the City of El Centro and south of the Naval Air Facility. It is bounded on the west by the New River, on the north by El Centro Street, on the east by Bennett Road, and on the south by Interstate 8.

Westmorland Urban Area – This (approximately) 880 acre area surrounds the incorporated City of Westmorland. It is bounded on the west by Kingsley Road, State Highway 78/86, and Martin Road, on the north by Howenstein Road with a northerly extension between Martin Road and the railroad tracks for a distance of approximately 1,320 feet, on the east by Dean Road, and on the south by Baughman Road.

West Shores/Salton City Urban Area – This large unincorporated area encompasses approximately 31,840 acres and includes the developing community of Salton City, the beach resorts of Vista Del Mar, Salton Sea Beach, and Desert Shores, and the proposed Habitat 2000 Specific Plan Area. The Riverside County Line is the north boundary and Salton Sea is the east boundary. The Navy's Salton Sea Test Base generally forms the southern boundary; and State Highway 86 generally forms the west boundary, except for portions of Salton City which extend west of Highway 86. Portions of the Torres-Martinez Indian Reservation are located in the northern portion of the Urban Area.

Winterhaven Urban Area – This (approximately) 200 acre area consists of the Townsite of Winterhaven and surrounding areas, and is situated in the most southeastern section of Imperial County. The Indian Reservation surrounds the north, east and west boundaries. The north boundaries are Blocks 1 and 2 situated north of H Street and Block 13 situated north of D Street, the east boundary is First Avenue, the south boundary is the Colorado River, and the west boundaries are Third Avenue Townsite of Winterhaven and the east line of the west half of the Southwest Quarter of Section 27 Township 16 South – Range 22 East.

The actual boundaries of the Urban Areas are graphically depicted on the Land Use Plan enlargements referenced as LU-1X, LU-2X, and LU-3X which are adopted as an integral part of this General Plan, and which are on file in the Planning & Development Services Department.

2. Community Areas

The Community Areas are also shown on Figure 1 and include Palo Verde, Ocotillo/Nomirage Community Plan; and Hot Mineral Spa/Bombay Beach Community Area.

Community Areas differ from Urban Areas in that they are primarily second home, retirement, or recreation areas with limited commercial or employment opportunities. Urban services, including sewer and water, are limited.

Ocotillo/Nomirage is provided water service by private water companies and individual wells; Palo Verde by the Palo Verde County Water District; and Hot Mineral Spa/Bombay Beach by the Coachella Valley Water District. Only Bombay Beach has a public sewage system, also operated by the Coachella Valley Water District. The others rely on subsurface septic systems or facilities operated by mobile home and RV parks.

Future growth in Ocotillo/Nomirage and Palo Verde is expected to consist primarily of infill by single family residences on existing lots, rather than expansion of community boundaries, except at very low densities. A planned expansion of Bombay Beach was approved in 1985 but has not been constructed.

Ocotillo/Nomirage Community Area – This area encompasses the entire Ocotillo-Coyote Wells groundwater basin consisting of approximately 108,000 acres, of which approximately 15,000 acres are privately held. The Community Area Plan focuses primarily on the desert residential communities of Ocotillo, containing approximately 465 acres, and Nomirage, containing approximately 225 acres, and also includes the small residential community of Yuha Estates located on Highway 98 approximately 5 miles east of Nomirage. The Ocotillo town site is bounded on the west by Shell Canyon and the tract boundary west of Via De Anza, on the north by the tract boundary north of the Imperial Highway, on the east by Boundary Avenue, and on the south by Interstate 8 and an area extending south along both sides of the Imperial Highway approximately 1,320 feet. The Nomirage town site is bounded on the west by Sage Road, on the north by Cholla Road and follows the tract boundary north along Palo Verde, Tamarack, and Molitar Roads, on the east by Molitar, Yucca, and Palo Verde Roads, and on the south by Saguaro Road. Interstate 8, State Highway 98, the Evan Hewes Highway, and Imperial Highway (S2) are the major transportation routes through the area. A County Sheriff's substation and community center are located on Imperial Highway in Ocotillo.

Palo Verde Community Area Plan – This 640 acre area is located in the most northeastern corner of Imperial County, with Riverside County to the north, and is comprised of Section 2, Township 9 South, Range 1 East. Ben Hulse Highway (State Highway 78) runs north-south through the area. The town's role is primarily as a commercial center serving travelers on Highway 78, the surrounding agricultural and rural areas, Colorado River mobile home and RV parks, and a small local population. Though it has a water filtration plant operated by a County Water District, Palo Verde's potential for growth of new employment opportunities is limited due to its remote location and the lack of a community sewerage system. Community facilities include a fire station, post office, community hall, church, and a rod and gun club.

Hot Mineral Spa/Bombay Beach Community Area – This 4,500-acre community, located on the east shore of the Salton Sea, is bounded by Riverside County on the north, Salton Sea State Recreation Area on the west, Coachella Canal on the east, and on the south by the Salton Sea State Recreation Area and the boundary between Townships 9 South and 10 South. Hot Mineral Spa is the area north of Highway 111 and is primarily occupied by mobile home and recreational vehicle spaces in four existing parks. These parks also include some self-contained camping spaces. The total permitted spaces for these parks in 1992 was 1,460. Other housing exists throughout Hot Mineral Spa on individual lots, typically 2-1/2 acres and larger in size.

The Bombay Beach community is located on the Salton Sea and contains approximately 500 dwelling units on 704 buildable residential lots. The rising water level of Salton Sea has inundated an additional 240 lots located south of 5th Street.

Because limited potable groundwater is available in this area, the Coachella Valley Water District (CVWD) provides water service to the Hot Mineral Spa trailer parks, to Bombay Beach, and to most of the single residences in the area. Some residences, however, depend on bottled water. Sewer service is provided to Bombay Beach by CVWD which operates a treatment plant on the north side of Highway 111 and the railroad line. Adequate area exists for expansion of the sewage treatment plant to eventually serve Hot Mineral Spa in the future. Presently, the mobile home and RV parks in Hot Mineral Spa rely on either oxidation ponds or common septic systems for park residents. Individual residences rely on septic systems. Bombay Beach also has community management and maintenance services provided by the Bombay Beach Community Services District.

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Figure 1 – Imperial County Land Use Plan
11x17

D. Specific Plans

1. Purpose and Content

Specific Plans are "planning tools" used to implement the general plan for large development projects such as a planned residential community, large scale commercial project, industrial park, etc., or to designate an area of the County where further studies are needed prior to development. Specific Plans should be utilized where existing conventional zoning regulations do not provide adequate controls over land use and development. Upon adoption, the Specific Plan serves as an amendment to the County General Plan for a very defined and detailed area. To be adequate, a Specific Plan must also be consistent with all aspects of the General Plan.

Specific Plans may be adopted by Resolution of the County Board of Supervisors. Following adoption of the Specific Plan, all subsequent use or development of the property shall be in conformance with the Specific Plan. The minimum required contents of Specific Plans are set forth in the California Government Code, Section 65451, as follows:

(a) A text and/or diagrams which specify all of the following in detail:

(1) The distribution, location, and extent of the uses of land, including open space, within the area covered by the plan.

(2) The proposed distribution, location, and extent and intensity of major components of public and private transportation, sewage, water, drainage, solid waste disposal, energy, and other essential facilities proposed to be located within the area covered by the plan and needed to support the land uses described in the plan.

(3) Standards and criteria by which development will proceed, and standards for the conservation, development, and utilization of natural resources, where applicable.

(4) A program of implementation measures including regulations, programs, public works projects, and financing measures necessary to carry out paragraphs (1), (2), and (3).

(b) The Specific Plan shall include a statement of the relationship of the Specific Plan to the County General Plan.

<u>The determination on whether a specific plan shall be prepared rests entirely with the Planning & Development Services Department.</u>

2. Standards and Criteria for Approval

Specific Plans often represent significant investment of staff time to process the project, as well as County and local agency resources to support planned new growth. In order to justify this commitment of resources, proposed Specific Plans shall be required to clearly demonstrate fiscal, economic, social, public facility, or other local public benefit. The following Standards and Criteria shall be evaluated for each proposed Specific Plan during a "Specific Plan Pre-Application Assessment" with recommended findings presented to the Board of Supervisors by the Planning & Development Services Department and Planning Commission. In order to adopt a Specific Plan, the Board of Supervisors shall consider the findings of the following five criteria:

(a) Will the Specific Plan have a positive fiscal and economic long term impact for the County of Imperial?

An acceptable project will be able to demonstrate through an independent fiscal impact analysis and public facility financing study that revenue from property tax, sales tax, hotel room tax, and required fees, exactions, and assessments, will fully offset the cost of providing public services and infrastructure, including County administrative facilities, libraries, parks, roads, drainage, schools, wastewater collection and treatment, water treatment and distribution, fire protection, and police services.

(b) Will the Specific Plan create new and permanent jobs?

An acceptable project will be able to demonstrate through an independent market analysis that jobs to be created by the project will not be achieved to the detriment of existing jobs or businesses within the County. In other words, there will be a net increase in County-wide employment.

(c) Will the Specific Plan minimize or mitigate adverse environmental impacts and be compatible with existing or planned land uses of nearby cities or communities?

An acceptable project will be able to demonstrate feasible mitigation for all potential environmental and land use impacts of the project.

(d) Will the Specific Plan offer diverse or unique opportunities to the County and its citizens?

An acceptable project will be able to demonstrate benefits of the project which are not generally or adequately available in the County. Examples include, but are not limited to, increased cultural activities, convention or conference facilities, or unique recreational opportunities.

(e) Will the Specific Plan result in the achievement or significant progress toward accomplishing an unmet goal of the County General Plan?

An acceptable project will be able to demonstrate that the achievement of a goal of the County General Plan or one of its Elements, which is not currently being adequately met, will be substantially advanced as a result of the proposed project.

In addition to the above findings, if the proposed Specific Plan is less than 640 acres in size, a finding shall also be made that the proposed project will provide a significant social or economic benefit to the County.

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Figure 2 – Specific Plan Areas

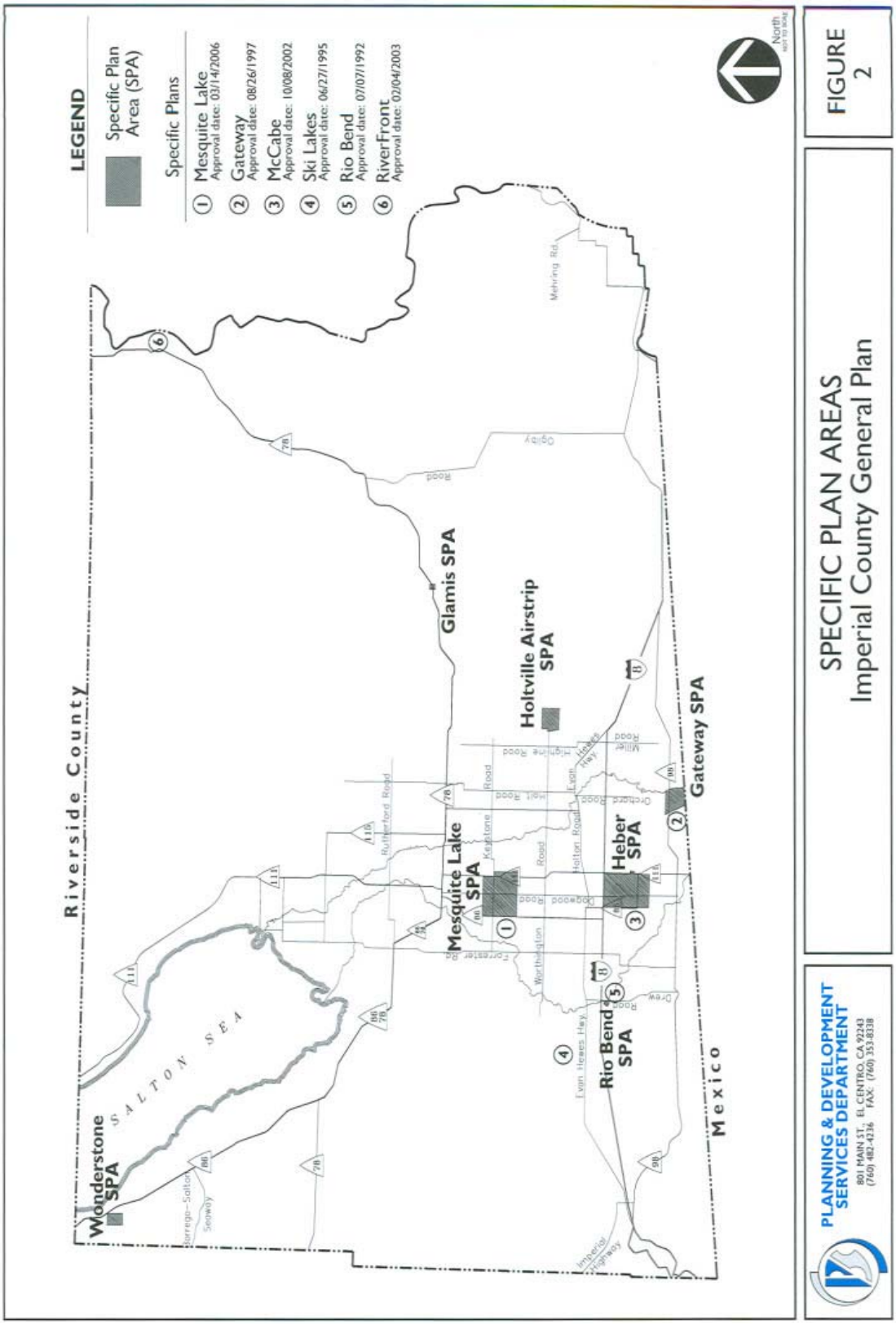

FIGURE 2

SPECIFIC PLAN AREAS
Imperial County General Plan

PLANNING & DEVELOPMENT SERVICES DEPARTMENT
801 MAIN ST., EL CENTRO, CA 92243
(760) 482-4236 FAX: (760) 353-8338

3. Designated Specific Plan Areas

The following Specific Plan Areas (SPAs) are shown on Figure 2 and designated on the Land Use Plan of the County General Plan. In these areas, except for the Mesquite Lake SPA, a Specific Plan, approved by the Imperial County Board of Supervisors, is required prior to any significant new use or development, except agricultural use.

This Land Use Element supersedes all prior Land Use Elements. Previously approved but never developed (as of September 30, 2006) or rescinded/deleted Specific Plan Areas no longer Identified in this Element shall be deemed null in void. Plan Areas removed and deemed null in void in this update include Habitat 2000, Bombay Beach "North", and Viva del Sol (Paden/Shealy).

Previously removed Specific Plan Areas include Felicity, Tamarack Canyon Ranch, and CM Ranch by Board of Supervisors M.O. 24 dated Dec. 16, 2004.

<u>Gateway of the Americas (adopted August 26, 1997)</u> Specific Plan Area

The Gateway Specific Plan Area is located adjacent to the International Boundary approximately 5 miles east of the City of Calexico. It encompasses approximately 1,700 acres bounded on the west by the Ash Canal, on the north by a line approximately 1,300 feet north of Highway 98, on the east by the Alamo River, and on the south by the Republic of Mexico.

The Specific Plan Area surrounds the new 87-acre port of entry (POE) on the U.S. side of the border which was developed by the U.S. General Services Administration (GSA). Construction of the POE has begun in 1993 and will result in the largest land crossing located along the 2,000-mile Mexico-U.S. border. The GSA expects that all commercial traffic currently using the Calexico crossing and much of the east-bound commercial traffic from the Tijuana area now using the Otay Mesa crossing in San Diego County, will be diverted to the new POE. The new State Route 7 (completed in 2005) connects the POE to Interstate 8 and State Route 98.

Objectives

The Gateway Specific Plan Area is intended to be developed primarily with industrial, office, and warehouse space for manufacturers, customs brokers, freight forwarders, and corporate or administrative offices. Secondary land uses would include retail, restaurant, and service commercial outlets, a truck service center, motel accommodations, housing, and recreation.

The Specific Plan shall be coordinated with the City of Calexico and all affected local, state, and federal agencies, and major property owners on both sides of the border.

Development of public services within the SPA shall be provided concurrent with need.

Extension of rail service to the SPA will provide additional economic benefits for the project and should be pursued.

Existing agricultural uses adjoining the SPA shall be protected from incompatible land uses and the “right to farm” shall be preserved.

Water quality, natural habitat, and visual benefits of the Alamo River shall not be adversely impacted by the proposed development.

Policies

The primary land uses of industrial, office, and warehouse space shall account for not less than 65 percent of the net developable area of the SPA. Net developable area excludes land for major roadways, other infrastructure improvements, and natural or recreational open space. The remaining 35 percent is limited to retail, restaurant, service commercial outlets, truck service center, motel accommodations, and housing.

An adequate, independent market analysis shall be required to support proposed land uses. The market analysis shall include an analysis of the need for housing, including employee housing affordable to low to moderate income households.

Development plans shall be coordinated with the U.S. General Services Administration, Border Patrol, and other appropriate federal agencies; landowners on the Mexican side of the border and appropriate agencies of the Mexicali city government and the Republic of Mexico; the City of Calexico; Imperial Irrigation District; and Caltrans and other appropriate State agencies.

The Specific Plan includes a public facilities financing plan outlining capital improvements needed for the project, feasible financing mechanisms, and timing for their construction. This includes sewer, domestic water, transportation, fire and police protection, and schools.

The Specific Plan was accompanied by an Environmental Impact Report which included an analysis of project impacts to include the following: Agriculture, air and water quality, biology, cultural resources, growth inducement, traffic, visual/aesthetics, and such other issues as required by the County of Imperial and other Responsible Agencies.

Zoning

The Gateway of Americas Specific Plan land use zones include "GC" Gateway Commercial, "GI" Gateway Industrial, and "GSP" Government/Special Public. There is also an overlay area identified as "GCC" Gateway Central Commercial, which is characterized as areas limited to commercial/retail uses only. Uses and development standards are listed with the Gateway of Americas Specific Plan. The implementing ordinance shall be the Imperial County Codified Ordinance, Title 9 (Land Use Ordinance), Division, 5, Chapter 1, Section 90501.17, with the Specific Plan identified as an "Exhibit".

NOTICE: This plan was adopted by the Board on August 26, 1997 and is herewith incorporated into the County's General Plan as Appendix A. The above statement of intent reflects the original objectives.

Glamis Specific Plan Area

The Glamis Specific Plan Area encompasses approximately 160 acres bisected by State Highway 78 approximately 27 miles east of the City of Brawley. The Southern Pacific Railroad crosses the site on the east. Life at Glamis is centered around off-road vehicle activity at the Algodones Sand Dunes and Osborne Scenic Overlook.

Objectives

The Glamis Specific Plan Area is intended to accommodate recreation-supporting land uses including retail and service commercial, motel accommodations, recreational vehicle and mobile home parks, and community facilities.

The Specific Plan shall be coordinated with the Bureau of Land Management (BLM) and affected local agencies.

Public services to the SPA shall be provided concurrent with need.

Policies

The Specific Plan shall focus on visitor-serving facilities and accommodations. Residential uses shall not be intended for permanent occupancy except as needed for on-site employees.

The Specific Plan shall include design guidelines for the physical arrangement of land uses and open space/recreation areas. Adequate open space shall be provided within the developed areas to complement the open space character of the area. Buildings should be sited to allow through views from Highway 78 to open space beyond.

The Specific Plan shall include a public facilities financing plan outlining capital improvements needed for the project, feasible financing

mechanisms, and timing for their construction. This includes, sewer, water, and fire and police protection.

The Specific Plan shall be accompanied by an Environmental Impact Report which includes an analysis of project impacts to include the following: Air and water quality, biology, noise, traffic, visual/aesthetics, and such other issues as required by the County of Imperial and other Responsible Agencies.

Holtville Air Strip Specific Plan Area

The Holtville Air Strip encompasses approximately 1,830 acres located 6 miles east of the City of Holtville. The East Highline Canal runs along the west boundary of the site. Road access is provided by Norrish Road and Worthington Road.

Constructed as the Auxiliary Air Station by the U.S. Navy in World War II, Holtville Airport is now owned and operated by the County of Imperial, though by deed from the federal government, it may be re-established as a military airfield in the future. It has the longest and widest runway, plus the greatest land area of any of the public use airports in the County and was selected as one of the preferred sites for a "wayport", a super-regional airport hub that would primarily serve as a place where passengers would transfer between local and long-haul flights. The airstrip is presently unattended, contains no facilities, and is seldom used; but represents an opportunity to develop job-producing land uses benefiting the City of Holtville and the region.

Objectives

The Holtville Air Strip Specific Plan Area is intended to allow development of a regional airport and support facilities; and also to accommodate light to medium industrial uses, primarily those conducted within enclosed buildings. Community facilities and agricultural packing and processing may also be appropriate. Residential uses shall not be permitted. It is further the intent of this plan to protect the land uses around the specific plan area.

The Specific Plan shall be coordinated with the City of Holtville, Bureau of Land Management (BLM), and other affected local agencies.

Public services to the SPA shall be provided concurrent with need.

Policies

The Specific Plan shall focus on job producing manufacturing and service uses. Establishment of an airport at or adjacent to the site is not a requisite for development, but should be evaluated for feasibility throughout the process. The land use plan should be designed to accommodate a potential future decision to site a regional airport.

The Specific Plan shall include a public facilities financing plan outlining capital improvements needed for the project, feasible financing mechanisms, and timing for their construction. This includes, sewer, water, and fire and police protection.

The Specific Plan shall be accompanied by an Environmental Impact Report which includes an analysis of project impacts to include the following: Agriculture, air and water quality, biology, cultural resources, growth inducement, noise, traffic, visual/aesthetics, and such other issues as required by the County of Imperial and other Responsible Agencies.

No private projects are allowed absent a Specific Plan or a Conditional Use Permit under special conditions.

Mesquite Lake Specific (adopted March 14, 2006) Plan Area

Mesquite Lake is located between the Cities of Imperial and Brawley and is predominantly affected by soils that are high alkaline which reduces agriculture production. The proposed Specific Plan Area encompasses approximately 11.5 square miles bordered on the west by State Route 86, on the north by Carey Road, on the east by Highway 111 from Carey Road to Keystone Road and 2,500 feet east of State Route 111 from Keystone Road to Harris Road, and on the south by Harris Road. The Holly Sugar Plant, and manure cogeneration and biomass plants, exist on the site.

Objectives

The Mesquite Lake Specific Plan Area provides the opportunity to develop new light, medium, and heavy industrial land uses. Residential uses are not permitted because they are not compatible with planned industrial uses and surrounding agricultural uses.

The Specific Plan will be coordinated with the County of Imperial, City of Imperial, and other affected local agencies.

Public services to the SPA shall be provided concurrent with need.

Policies

The Specific Plan shall focus on job-producing industrial uses. Agriculture-related uses such as packing and processing, waste processing, equipment manufacturing and maintenance, and production and distribution of farm chemicals would be permitted.

The area also contains geothermal resources which should be developed if economically feasible. Direct geothermal heat uses as well as other

appropriate renewable energy uses are also strongly encouraged in this area.

The Specific Plan shall include a public facilities financing plan outlining capital improvements needed for the project, feasible financing mechanisms, and timing for their construction. This includes, sewer, water, and fire and police protection.

The Specific Plan shall be accompanied by an Environmental Impact Report which includes an analysis of project impacts to include the following: Agriculture, air and water quality, biology, cultural resources, growth inducement, traffic, visual/aesthetics, and such other issues as required by the County of Imperial and other Responsible Agencies.

Zoning

The Mesquite Lake Specific Plan land use zones include "ML-I-1" Mesquite Lake Light Industrial, "ML-I-2" Mesquite Lake Medium Industrial "ML-I-3" Mesquite Lake Heavy Industrial, "ML-AA" Mesquite Lake Agriculture and Aquaculture, and "ML-GS" Mesquite Lake Government/Special Public. Uses and development standards are listed with the Mesquite Lake Specific Plan. The implementing ordinance shall be the Imperial County Codified Ordinance, Title 9 (Land Use Ordinance), Division, 5, Chapter 1, Section 90501.17, with the Specific Plan identified as an "Exhibit".

NOTE: This plan was adopted by the Board on March 14, 2006 and is herewith incorporated into the County's General Plan as Appendix B.

Heber Specific Plan Area

The Heber Specific Plan Area includes approximately 4,834 acres between the Jasper and Willoughby Roads on the south, the State Route 86 to the west, McCabe Road to the north, State Route 111 to the east, and a 1,320 feet strip of land east of State Route 111 running from Correll Road and Heber Road. The Heber Specific Plan Area is designed to allow for mixed use development within the Heber Public Utility District due to its ability to offer urban level services.

Objectives

The Heber Specific Plan Area is intended to allow commercial, residential, industrial, renewable energy and other employment oriented development in a mixed use orientation. It shall also include open space/recreation area with at least one 40 acre or larger regional park along McCabe Road.

The Specific Plan will be coordinated with the City of El Centro and the Heber Public Utility District.

Public services will be provided concurrent with need.

Policies

The Specific Plan shall allow for a wide range of development opportunities which can conform in a mixed use setting.

The Specific Plan shall include architectural and landscape design guidelines which assure sensitivity to the regional corridor of Highway 111.

The Specific Plan shall include a public facilities financing plan outlining capital improvement needed for the project, feasible financing mechanisms, and timing for their construction. This includes sewer, water, and fire and police protection.

The Specific Plan shall be accompanied by an Environmental Impact Report which includes the analysis of project impacts to include the following: Agriculture, air and water quality, biology, cultural resources, growth inducement, traffic, visual/aesthetics, and such other issues as required by the County of Imperial and other Responsible Agencies.

Wonderstone Aggregate Plan Area

The Wonderstone Aggregate Specific Plan Area encompasses approximately 721.33 acres located approximately 2 miles west of the community of Salton Sea Beach in the northwestern area of the County of Imperial. Identified as a portion of Section 16 and all of Section 21, Township 9 South, Range 9 East, S.B.B.& M. The proposed Wonderstone Aggregate Specific Plan Area is intended to provide an area for the mining and processing of aggregate; the production of aggregate products, hot mix asphalt and Portland cement concrete; and the importation, storage and processing of recycled asphalt and concrete to service ongoing local and regional development and growth.

Objectives

The Wonderstone Aggregate Specific Plan Area provides the opportunity to protect the current and future ability to mine and process the significant aggregate deposits within the Specific Plan Area through the prohibition within the Specific Plan Area of incompatible land uses.
Protect the environment by adopting uniform general planning standards which would apply to all aggregate surface mining operations, and planning and performance standards which would apply to processing and reclamation activities, the production of aggregate products, hot mix asphalt and Portland cement concrete; and the importation, storage and

processing of recycled asphalt and concrete, within the Specific Plan Area and;

Create and maintain Imperial County jobs – directly in the aggregate mining and processing, trucking, construction, and building trades, and indirectly in the general economy through the support of construction and building projects which require aggregate, hot mix asphalt and Portland cement concrete.

The Specific Plan will be coordinated with the County of Imperial, City of Imperial, and other affected local agencies.

Public services to the SPA shall be provided concurrent with need.

Policies

The Specific Plan shall focus on protecting and maintaining aggregate deposits by providing an area wide longer term development plan.

Maintain existing job-base and encourage future job growth, both direct and indirect of the aggregate operation.

The Specific Plan shall contain project specific land use zoning and development standards for the entire project site. The Specific Plan shall also include an area wide Reclamation Plan outlining remeadation of the site after development.

The Specific Plan shall be accompanied by an Environmental Review which includes an analysis of project impacts to include the following: air and water quality, biology, cultural resources, growth inducement, traffic, visual/aesthetics, and such other issues as required by the County of Imperial and other Responsible Agencies.

Zoning

The Wonderstone Aggregate Specific Plan land use zone includes "WAMP" Wonderstone Aggregate Mining and Processing. Uses and development standards are listed within the Wonderstone Aggregate Specific Plan. The implementing ordinance shall be the Imperial County Codified Ordinance, Title 9 (Land Use Ordinance), Division, 5, Chapter 1, Section 90501.17, with the Specific Plan identified as an "Exhibit".

Note: the Wonderstone Aggregate Specific Plan is currently going through the discretionary permitting process.

Small Scale Adopted and Developed Specific Plans

Rio Bend

The Rio Bend Specific Plan is located at 1601 Drew Road, approximately 1,000 feet south of Interstate 8, approximately 1.5 miles southwest of the Community of Seeley. The existing development 1984 Rio Bend RV Resort Ranch, which had permitted the development of the Lakeview Golf Course and RV Park. The 1992 plan called for a more balanced community, which along with additional RV spaces included the development of commercial and single family residential areas. An amendment to the 1992 Specific Plan was done in 2001, The Development includes a 902 RV space park, 68 space mobile home park (971 total units), and a 9 hole golf course. Rio Bend Specific Plan was adopted on 07/07/1992.

NOTE: This plan is herewith incorporated into the County's General Plan as Appendix C.

Imperial Lakes (Ski Lakes)

The Imperial Lakes Specific Plan also known as Ski Lakes is located at 2828 Evan Hewes Hwy, approximately 5 miles west of the Community of Seeley. The Specific Plan is a gated residential community consisting of a 21 unit mobile home park subdivision and two ski style artificial lakes. Imperial Lakes Specific Plan was adopted on 06/27/1995.

NOTE: This plan is herewith incorporated into the County's General Plan as Appendix D.

McCabe Ranch

The McCabe Ranch Specific Plan is located on approximately 79 acres, at the northwest corner of the intersection of Correll Road and Dogwood Road, in the community of Heber. McCabe Ranch is a mixed residential density development, planned for 304 single family homes, and 127 multifamily units. The development of the 304 single family homes is over 70 percent completed. The multifamily component has not yet been developed. McCabe Ranch Specific Plan was adopted on 10/08/2000.

NOTE: This plan is herewith incorporated into the County's General Plan as Appendix E.

River Front

The River Front Specific Plan is located on approximately 80 acres, in the northeastern corner of Imperial County, approximately 33 miles south of the City of Blythe and 60 miles northeast of the City of El Centro. The site is on the east side of Walters Camp Road, approximately eight (8) miles southeast of Highway 78 and 13 miles south of the community of Palo Verde. The River Front Specific Plan consists of 34 single-family residential development centered around the

recreational opportunities created by the Colorado River. Presently the project is still in the parcel mapping phase. The River Front Specific Plan was adopted on 02/04/2003.

NOTE: This plan is herewith incorporated into the County's General Plan as Appendix F.

II. EXISTING CONDITIONS AND TRENDS

A. Preface

Knowledge, experience and reasoned expectations of future conditions determines the scope of the issues that the Land Use Element must address. This chapter includes a generalized description of existing physical, cultural, and land use features within the County, from both a historic and expected future perspective.

B. Land Use/Population

Imperial County is, and will continue for the foreseeable future to be, a predominantly agricultural area, **although in 2003 a significant increase in urbanization began to show.** Presently, approximately one-fifth (534,328) of the nearly 3 million acres of the County is irrigated for agricultural purposes. In addition, approximately 50 percent of County lands are largely undeveloped and under federal ownership. The developed area where the County's incorporated cities, 'nincorporated communities, and supporting facilities are situated comprise less than one percent of the land (see Table 1).

Imperial County Planning & Development Services Department bases its population estimates on building permits and housing unit change. From this annual compilation, the Population Research Unit of the California Department of Finance (DOF) estimates the annual change in population. According to the Department of Finance's January 1, 2006, estimates, the population for the unincorporated area is 36,166 with the total population for Imperial County being 166,585. This compares to the 1990 census results of 27,339 for the unincorporated area with the total population for the County being 109,303 and the 2000 census results of 32,772 for the unincorporated area and 147,361 for the entire County (see Table 2). According to DOF 2006 figures, the average household size county-wide is approximately 3.32 persons per household, with the average in cities being 3.42 persons per household and the average in the unincorporated area being 2.96 persons per household.

Population in the unincorporated areas of the County tends to concentrate in agricultural areas and in recreation/retirement communities. Agricultural related communities include the townsites of Heber, Niland and Seeley in the Imperial Valley. Along the Colorado River, in the eastern portion of the County, small population clusters exist within the townsites of Palo Verde and Winterhaven.

Recreation/retirement communities include Ocotillo/Nomirage located in the southwest portion of the County, and Hot Mineral Spa and Bombay Beach, on the northeastern shore of the Salton Sea. The West Shores communities of Salton City, Salton Sea Beach, and Desert Shores are also largely retirement and recreation communities, though increasingly their populations are becoming more diversified. These communities experience a noticeable increase in population during the winter months when visitors converge to the area to avoid cold/wet winters in other parts of the country.

The seven incorporated cities: Brawley, Calexico, Calipatria, El Centro, Holtville, Imperial, and Westmorland, account for 78.3 percent of the total population (Table 2). In the past, incorporated cities have grown at a faster pace than the rural areas. Recently, residential development has increased in agricultural areas away from cities and communities. This has created conflicts with agriculture, in spite of the County's "Right to Farm" ordin'nc" (see Agricul"ure Element). Also, treated water is generally not available in these areas and the U.S. Environmental Protection Agency has, by Administrative Order of December 22, 1992, prohibited Imperial Irrigation District from providing service to these residences from untreated canal water. Attempts to resolve this situation, including installation of in-home treatment systems, are on-going.

TABLE 1
IMPERIAL COUNTY
LAND USE DISTRIBUTION (IN ACRES*)

Irrigated (Agriculture)			
	Imperial Valley	512,163	
	Bard Valley (Including Reservation)	14,737	
	Palo Verde Valley	7,428	
	Total	534,328	(18.2%)
Developed			
	Incorporated	9,274	
	Unincorporated	8,754	
	Total	18,028	(0.6%)
Salton Sea**		211,840	(7.2%)
Desert/Mountains			
	Federal	1,459,926	
	State	37,760	
	Indian	10,910	
	Private	669,288	
	Total	2,177,884	(74.0%)

IMPERIAL COUNTY TOTAL	2,942,080 Acres

* All acreages are approximations and should, therefore, only be used for informational purposes.
** Calculated at elevation of -230.
Source: Imperial County General Plan, County Overview-September 1985.

TABLE 2
IMPERIAL COUNTY POPULATION AND HOUSING (2000 & 2006)

Community	2006 Population	2000 Population	2006 Housing Units	2000 Housing Units
Brawley	25,488	22,052	8,237	7,038
Calexico	36,740	27,190	9,575	6,983
Calipatria	7,828	7,289	1,081	961
El Centro	42,002	37,735	13,789	12,263
Holtville	5,846	5,612	1,704	1.617
Imperial	10,140	7,560	3,237	2,385
Westmorland	2,375	2,131	751	667
City Subtotal	130,419	109,588	38,374	31,914
Unincorporated Area	36,166	32,773	13,418	11,977
Total	166,585	142,361	51,792	43,891

Source: **2000 U.S. Census and 2006 Department of Finance**

Increasingly, the local economy is becoming more diversified and less reliant on the economic cycles of agriculture. In addition to economic diversification, there are a number of other factors which may accelerate population growth in the future and alter the above forecasted figures. For example, the construction of two State prisons in the area; the growth of the renewable energy industry in the area; the expansion of the Naval Air Facility; an additional Mexico/USA border crossing; and approval of the North American Free Trade Agreement (NAFTA) between the U.S., Mexico, and Canada. For further detailed County demographics, refer to the Housing Element.

C. Water/Power Resources

Water

Since its inception, the history of Imperial County has been tied to the availability of water from the Colorado River for agriculture. Agriculture is the County's main economic activity and for the foreseeable future will remain its dominant activity, however significant efforts have and continue to be made to diversify. The availability of water will play an important role in determining the population and economic growth of Imperial County.

The need to conserve water and improve irrigation methods will undoubtedly become more important in the future. The County shall continue to support measures to conserve water and its beneficial uses, however it is necessary to ensure that the future growth and development of the area is not jeopardized by the redistribution of locally used water resources to other regions of the state. The loss or redistribution of this resource will have a significant detrimental effect on the area's economy. Safeguards must be included in any proposed or approved water transfer to assure that significant environmental and socio-economic impacts do not occur and continued local water availability is assured.

See the Water Element and Conservation and Open Space Element for further information on water issues.

Power

Electrical power is supplied to most parts of the County by the Imperial Irrigation District (IID), except for the northeastern section which is served by Southern California Edison. In 1992, IID was serving approximately 75,000 electricity customers in Imperial Valley, and also to parts of Riverside and San Diego County. Currently the IID serves 130,000. Continual upgrading of the District's electrical supply and'distribution system has enabled them to continue to provide efficient service for residential, commercial, and industrial growth for the County from conventional fuel sources, as well as from hydroelectric, steam, renewable energy, and nuclear sources. The IID controls more than 1,000 megawatts of energy. 30% of which is from its own local power generation facilities and 70% is imported via long and short term power purchases (*IID 2006*).

D. Solid Waste Disposal Facilities

Research to identify and reserve sites for use as landfills is currently handled by the County Department of Public Works and the County Integrated Waste Management Plan. Once a suitable site has been identified, reserving the potential future landfill site may help to prevent encroachments by incompatible surrounding land uses. The use of buffer zones around existing landfills and the preservation of areas suitable for expansion for these sites may avoid the more difficult and time consuming task of developing a new landfill location. As a consequence, protecting existing sites from incompatible encroachments is very important.

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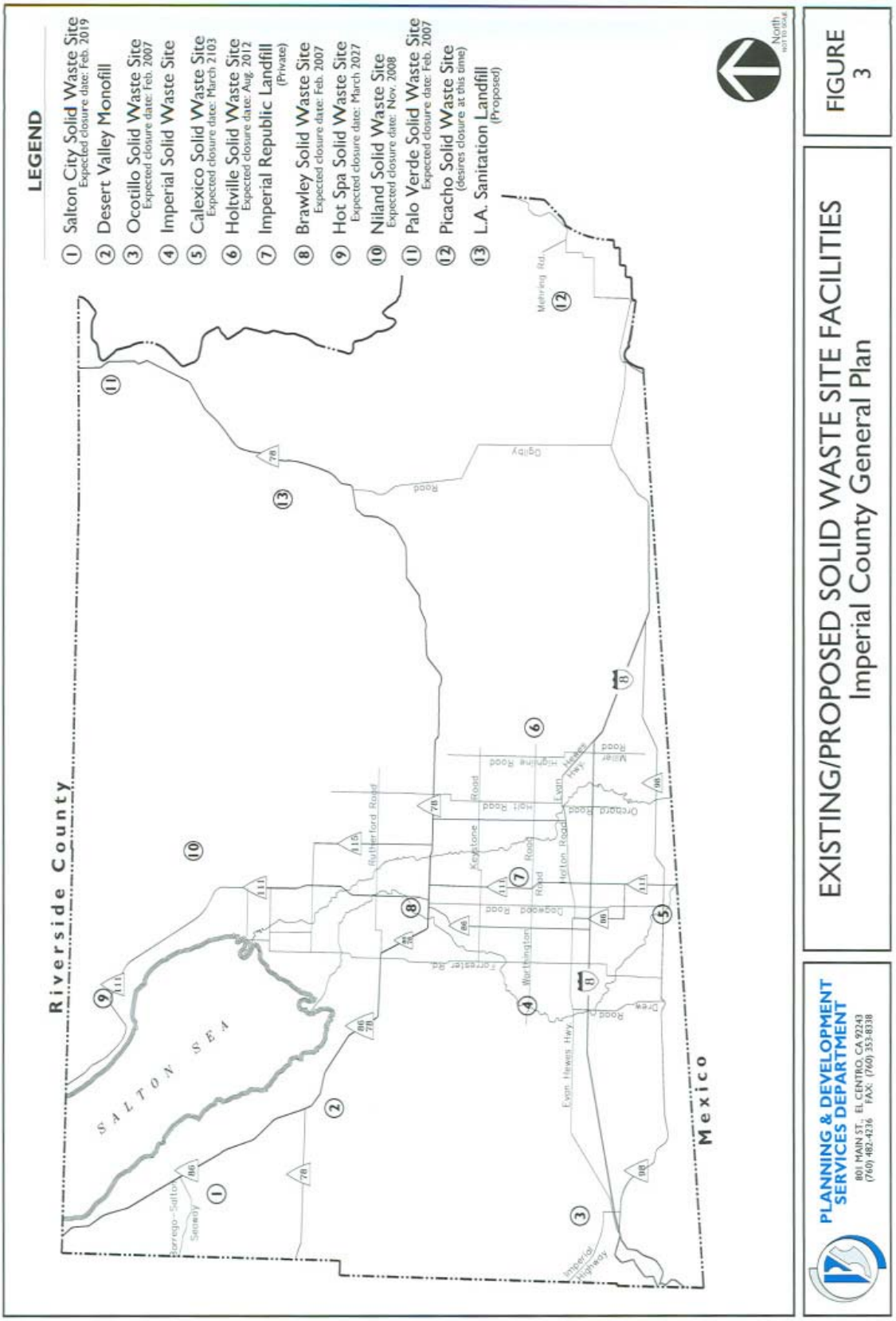
Figure 3 – Existing/Proposed Solid Waste Disposal Facilities



Currently there are ten County-operated Class III disposal sites throughout Imperial County which accept non-hazardous wastes (Figure 3). The current disposal capacity of existing landfills is considered to be sufficient to meet the needs of the County to at least year 2005 (Armas, 1992).

Four of the County landfills, near Brawley, Hot Mineral Spa, Imperial, and Calexico, are under the ownership or control of the County; five, Holtville, Niland, Salton City, Ocotillo, and Palo Verde, are on Bureau of Land Management (BLM) property; and one, the Picacho landfill, serves the Winterhaven/Bard area and is located on land owned by the Quechan Indian Reservation. Since the Quechan Indians have the right to terminate the County's use of the site on short notice, a nearby alternate site, on Bureau of Land Management land, has been reserved on a contingency basis. Most likely, the County would have to acquire ownership of this alternate site from BLM in order for it to be used as a landfill.

In addition to the public sites, Imperial Republic Acquisitions operates a private Class III waste disposal facility in the unincorporated area northwest of the City of Imperial; Laidlaw Environmental Services operates a Class I facility west of the City of Westmorland; and Desert Valley Company operates a Class II solid waste disposal/storage site northwest of the City of Westmorland. Two Class III private landfills are also proposed, but have not been approved at this time, which would dispose of municipal waste imported by rail from the Los Angeles-Orange County region. These proposed landfill sites are located southwest of the Chocolate Mountains and east of Glamis.

For more detailed information on hazardous waste disposal sites, please refer to the Health Department, Imperial County Hazardous Waste Management Plan. The Imperial County Integrated Waste Management Plan is being prepared by the Department of Public Works, with a draft to be presented to the State Integrated Waste Management Board in January 1994.

E. Schools

Within the County, the educational system is made up of seventeen school districts consisting of thirty-two elementary schools, nine middle schools, eight high schools, seven adult schools, one community college (Imperial Valley College) and one university (San Diego State University-Imperial Valley Campus) with two campuses in Calexico and Brawley (see Figure 4). The Imperial County Office of Education serves as the intermediate unit between the school districts and the State Department of Education. Among the services provided are Special Education, Migrant Education, Youth Employment Services and the Regional Occupation Program *(ICOE 2006 Report)*.

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F. County Buildings and Grounds

The majority of County facilities are located in generalized areas known as County Centers. These centers often include administrative, court, field operations, detention facilities, and park and recreation sites as shown on Figure 5. The Sheriff's Department maintains substations in various parts of the County with resident deputies in Ocotillo, Bombay Beach, Niland, and Palo Verde. The main facilities of the Imperial County Fire Department/Office of Emergency Services (OES) is located in Heber, with a Fire station within grounds of the Imperial County Airport (County Center III) in the City of Imperial. Road yards are maintained throughout the County by the Department of Public Works and contain equipment for maintenance of County roads. A County park adjoining the new Pioneer Museum has also recently been completed just south of the Imperial Valley College campus. The Imperial Valley College Museum is also planning to build a desert information center/museum adjacent to the town site of Ocotillo. Below describes all facilities and departments located throughout the County of Imperial.

County Center I, located in the City of El Centro, which is the County Seat, contains the Courthouse Building, Public Works, Property Services Shop Facility, County Property Services Administration, Ag. Commissioner, Records Storage, Probation Victim Witness Assistance Program, Purchasing, County Administration Facility, Health Department, Adolescence Family Life Program, Behavioral Health Central Services, Behavior Health Drug & Alcohol Administration, Behavior Health Clinic, Valley of Imperial Development Agency, District #2 Supervisor's Office, County Garage, Fairfield and Commercial Property, Ag. Center and the Planning & Development Services Department.

County Center II, located just south of the City of El Centro, contains the former County Hospital Building, Behavior Health Perinatal Infant Care, Behavior Health Perinatal Women's Program, CPS Maintenance Staff Residence, Water Storage, Former Geriatric Building, Public Administrator, Area on Aging Agency, CPS Warehouse & Equipment, CPS Maintenance Shop, Vector Control, CPS Maintenance Supervisor Residence, WomanHaven Shelter, Association for Retarded Children, Health Department Storage, Animal Shelter Facility, Herbert Hughes Correctional Center, Regional Adult Detention Facility, Sheriff Administration, Sheriff's Training Center, Juvenile-Probation/California Youth Authority, Betty Jo McNeece Receiving Home Dependent Children Facility, Imperial Valley Food Bank, Behavior Health Drug & Alcohol Residence, Health Department T.B., Fish & Game Pheasant Farm, the Kelly Youth Facility/V.O.A. and the Facilities for Abused, Abandoned or Neglected Children.

County Center III, located on the grounds of the Imperial Airport, contains the Airport Terminal Building, Airport Manager/Veteran Office, De Anza Rescue Unit, Office of Emergency Services, Former F.A.A. Tower, Airport Maintenance Shop/Storage, Airplane Hangers, Pioneer's Museum, and the Imperial Legion/Veteran Hall.

The Imperial County Recreational Areas are Osborne Park, Niland Marina, Niland Marina County Dump Site, Niland Miniature Golf Park, Palo Verde Park, Walker Park, Heber Dunes, Wiest Lake, Sunbeam Lake, Red Hill Marina, Pioneer's County Park, Ocotillo Park, and Seeley Park.

The Imperial County Road Yards are located in Heber, Bard, Imperial, Salton City, Brawley, Holtville and Palo Verde.

The outlying areas of the County include the Winterhaven Sheriff Sub-Station, Winterhaven Superior Court, Brawley Superior Court & Sheriff Sub-Station, Brawley North County Civic Center, Calexico Superior Court, Niland Sheriff Sub-Station, Holtville Legion, Holtville Veteran's Hall, Holtville Ag. Commissioner Inspector Sub-Station, Palo Verde Fire & Sheriff Sub-Station, Heber County Library & Community Center and the Ocotillo Library Trailer Building.

Other County Facilities include the Health Department Dentistry Program, Behavior Health Adolescence Drug & Alcohol Treatment Program, Behavior Health New Beginnings Drop-In Center, Behavior Health Day Treatment, Behavior Health Cal Works Program & Adult Outpatient Services/Drug Court, Department of Social Services, Office of Employment El Centro One Stop Facility, Social Services Adult/Family Services, Department of Social Services Brawley Cal-Works Immersion Program, Office of Employment Training Administration, Office of Employment Training Brawley One Stop Building, Calipatria Library, Niland Library, Holtville Library, Brawley Health Department Satellite Clinic, Health Department Satellite Clinic at Calexico Community Center, Heber Fire Sub-Station and the Seeley Fire Sub-Station.

In 2005, the County purchased 80 acres adjacent to County Center II, for expansion of the County Jail, relocation of the County Garage and other facilities.

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Figure 4 - School Facilities

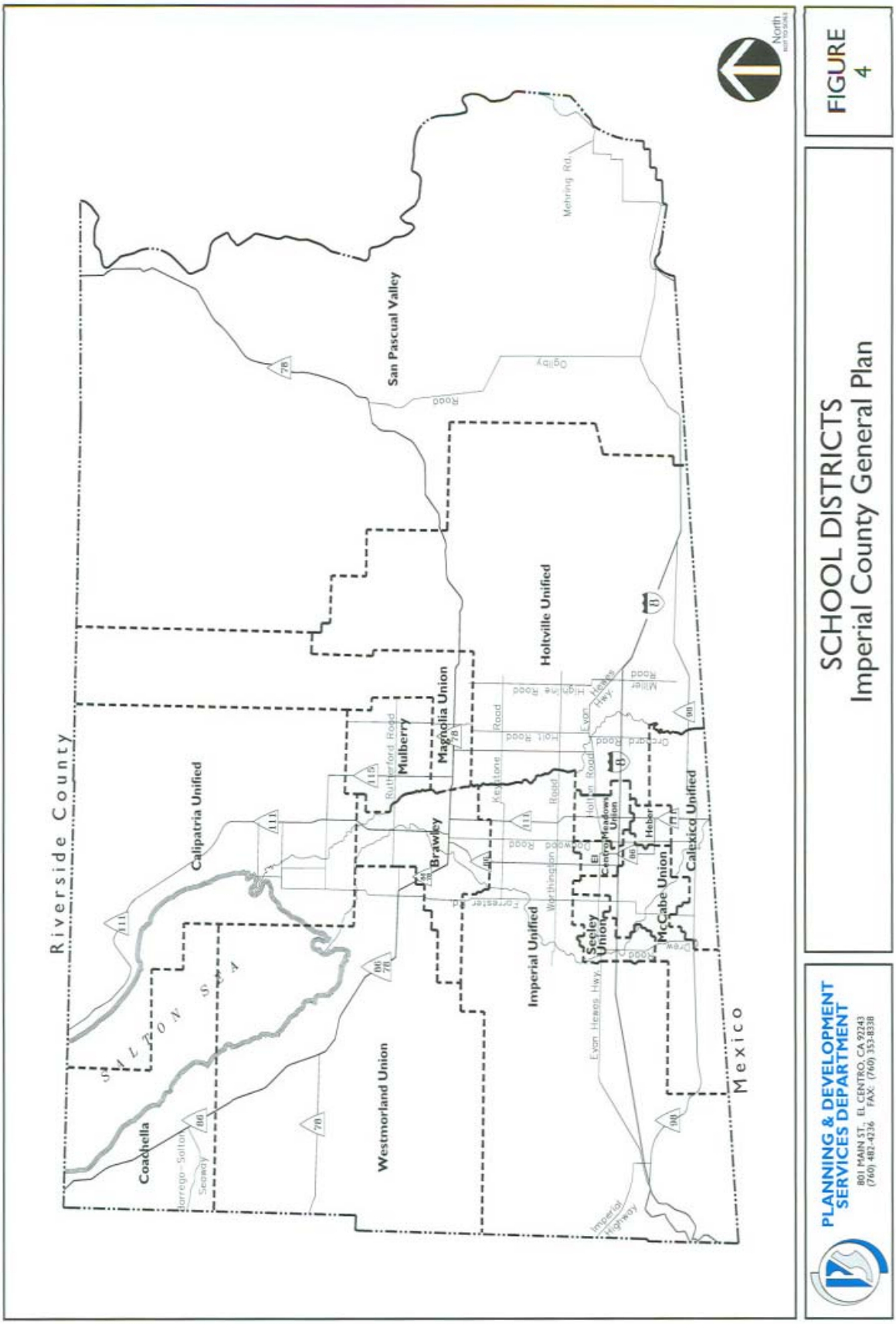
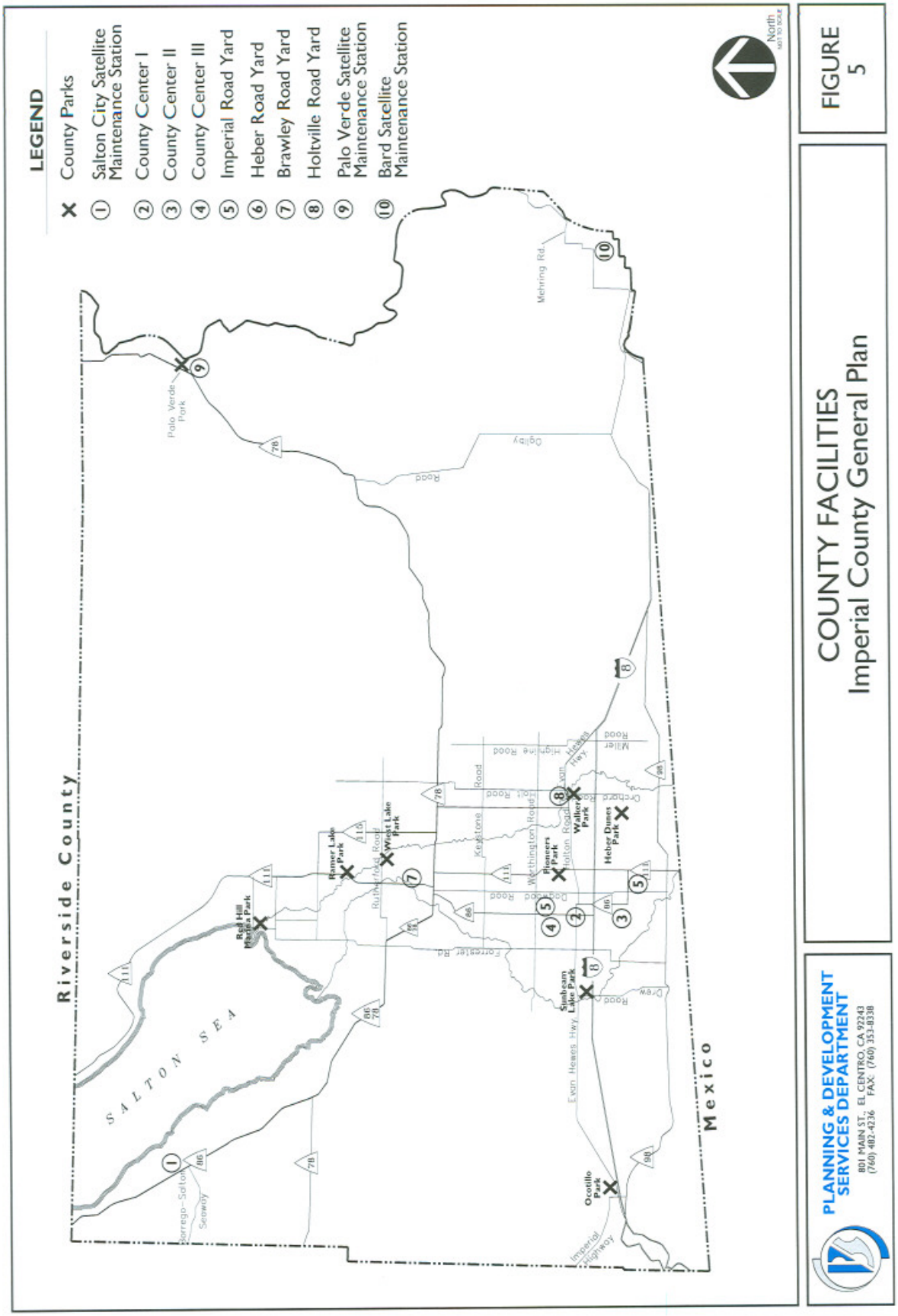


FIGURE 4

SCHOOL DISTRICTS
Imperial County General Plan

PLANNING & DEVELOPMENT SERVICES DEPARTMENT
801 MAIN ST., EL CENTRO, CA 92243
(760) 482-4236 FAX: (760) 353-8338

Figure 5 - County Facilities



G. Federal and State Facilities

With approximately 1,460,000 acres, the federal government owns approximately one-half of all land in the County, primarily the Department of the Interior's Bureau of Land Management (BLM) property and U.S. Military lands. BLM allows open recreational uses in several areas, including three sites in the Imperial (Algodones) Sand Dunes: Gloomiest/Gawky, Buttercup Valley, and Mammoth Wash. Hiking and ORV trails also exist on BLM lands throughout the County.

Military activities are centered at the Naval Air Facility El Centro, located north of Seeley, with military field and aerial operations conducted on approximately 350,000 acres in the Chocolate Mountains, 76,800 acres in the Superstition Mountains, 36,600 acres at the Salton Sea Test Base, and at other smaller sites throughout the County. The military's Yuma Proving Grounds, centered in Arizona, also includes lands in the southeast portion of the County.

Other federal sites include National Wildlife Refuges at the south end of the Salton Sea and two sites on the Colorado River -- Cibola near Palo Verde, and Imperial farther south. U.S. Border Patrol are located at the Mexicali/Calexico and Algodones/Andrade Ports of Entry, with Border Patrol inspection station also operated on Highway 86/78 south of Salton City, Highway 111 north of Bombay Beach, and Highway 78 south of Palo Verde.

State facilities consist of park lands of Anza-Borrego State Park and Ocotillo Wells State Recreation Area; the Salton Sea State Recreation Area on the east shore; and Picacho State Recreation Area on the Colorado River. The State Department of Fish and Game also manages two units of the Imperial Wildlife Area -- the Wister Unit on the east shore near Niland, and the Finney-Ramer Unit on the Alamo River near Calipatria.

The State Department of Corrections has a maximum-security prison in the area northeast of the City of Calipatria and a medium-security prison near Seeley. An agricultural pest inspection station is located on I-8 west of Winterhaven, and a Highway Patrol field office is located near Felicity.

The County has three port of entries between the United States and the Republic of Mexico. The City of Calexico is the oldest and heaviest used port of entry. It is the primary passage vehicle port with truck traffic. The Gateway of America's or east port is the newest port of entry, built in 1995. Its primary purpose is as a commercial truck port. It also serves to relieve the Calexico port congestion. The Third port is the Algadones port near the California/Arizona boarder. As a small port, it is used primarily for passenger vehicles, typically tourist.

The County has limited land use authority on federal and state lands when it pertains to private operations in cases where the operation addresses public health and safety issues. The County does not have direct authority on Indian Reservation lands which are the Torres-Martinez Reservation adjacent to the Riverside County line in the Salton City area or the Quechan Reservation in the Winterhaven-Bard area. However, the County has authority over off-site impact generated by on-site operations.

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Figure 6 - Federal and State Facilities

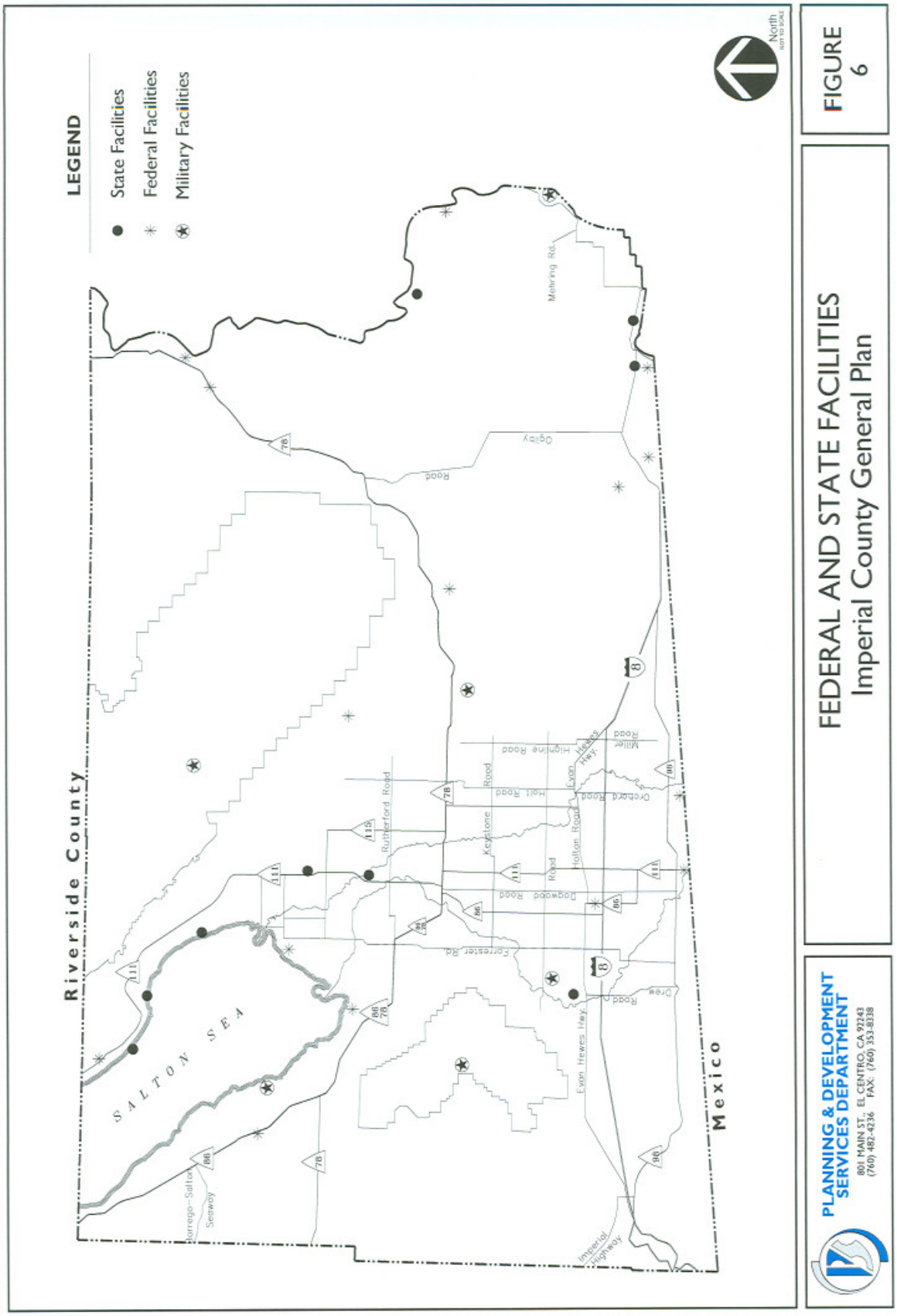

FIGURE 6

FEDERAL AND STATE FACILITIES
Imperial County General Plan

PLANNING & DEVELOPMENT SERVICES DEPARTMENT
801 MAIN ST. EL CENTRO, CA 92243
(760) 482-4236 FAX: (760) 353-8338

H. Natural/Mineral Resources

Most of the natural and mineral resources of Imperial County are still being developed. Opportunities and needs for mineral materials are found in the County's expanding economy. The more obvious needs are related to the demands of the construction industry. The need to develop additional sources of sand and gravel is expected to increase in the future.

Gypsum is being mined in the Fish Creek Mountains near the San Diego County line and transported by private rail line to a drywall plant at Plaster City. Pumice and claystone for expanded lightweight aggregate are ready for production when the need arises. Industrial materials such as kyanite, mineral fillers (clay, limestone, sericite mica, tuff), salt, potash and calcium chloride (geothermal sources), and sand are readily available.

The County also has large reserves of geothermal fluids. Geothermal energy is the natural heat of the earth that is brought to the surface by wells. These very hot fluids are then used to produce heat and/or electricity. The earliest attempt to develop geothermal steam for power in Imperial County was in 1927. Since then, the geothermal industry has become an important part of the County's industrial base. It has been estimated that Imperial County may have more geothermal energy than any other area in the United States.

Some of the geothermal brines are also rich in potash among other minerals, which offer additional incentives for mineral and geothermal development. The potential products of these fluids for electric power, fresh water, and minerals may provide the Imperial Valley with new industries. Low cost power sources could provide an added incentive for new industrial development, thus enhancing the value of the County's minerals. Please refer to the Renewable Energy and Transmission Element for further information on geothermal resources.

Gold and manganese deposits in the County contain sizable reserves, although only recently have economics and more efficient mining and processing methods allowed the increased development of the resources. [Gold Fields Mining Company, American Girl Joint Venture and Chemgold (Picacho Mine)], all located in the eastern portion of the County, were the major producers of gold ore in the County. For more information on natural and mineral resources, please refer to the Conservation and Open Space Element.

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III. GOALS AND OBJECTIVES

A. Preface

The Land Use Element of the General Plan serves as the primary policy statement by the Board of Supervisors for implementing development policies and land uses in Imperial County. This section (Chapter III) of the Land Use Element presents Imperial County's Goals and Objectives relative to all land use within the unincorporated areas of the County. They have been prepared in collaboration with the General Plan Ad-Hoc Advisory Committee appointed by the Board of Supervisors.

The Goals and Objectives, together with the Implementation Programs and Policies in Chapter IV, are the statements that shall provide direction for private development as well as government actions and programs. Imperial County's Goals and Objectives are intended to serve as long-term principles and policy statements representing ideals which have been determined by the citizens as being desirable and deserving of community time and resources to achieve. These Goals and Objectives, therefore, are important guidelines for land use decision making. It is recognized, however, that other social, economic, environmental, and legal considerations are involved in land use decisions and that these Goals and Objectives, and those of the other General Plan Elements, should be used as guidelines but not doctrines.

B. Goals and Objectives

Commercial Agriculture

Goal 1: Preserve commercial agriculture as a prime economic force.

Objective 1.1 Encourage the continued agricultural use of prime/productive agricultural lands.

Objective 1.2 Discourage the location of incompatible development adjacent to or within productive agricultural lands.

Objective 1.3 Identify compatible agriculture-related uses or renewable energy projects appropriate for location in agricultural areas.

Objective 1.4 Encourage and enhance the continued participation in the County Williamson Act Program.

Objective 1.5 Encourage agricultural food processing or value added business to locate in Imperial County to further enhance the continued viability of the Agricultural Economy.

Objective 1.6 Encourage the continued viability and growth of the agricultural industry to minimize dependence on foreign food supplies to the region and the country.

Economic Growth

Goal 2: Diversify employment and economic opportunities in the County while preserving agricultural activity.

Objective 2.1 Achieve a balanced and diversified local economy with a variety of economic and employment opportunities.

Objective 2.2 Provide adequate space and land use classifications to meet current and projected economic needs for commercial development.

Objective 2.3 Continue to evaluate economic development strategies, including new industrial, commercial, and tourist-oriented land uses. Tourist-oriented uses must be compatible with BLM management goals in areas near BLM lands.

Objective 2.4 Improve the "regional" economic development cooperation with the other agencies in the County through collaboration, partnerships, and the utilization of the public/private partnerships such as the current IVEDC (Imperial Valley Economic Development Corporation).

Objective 2.5 Continue partnership efforts such as the Foreign Trade Zone JPA, or the Enterprise Zone JPA to obtain economy in scale, and the better utilization of public funds in promoting the County toward a healthier economy and a healthier quality of life area.

Regional Vision

Goal 3: Achieve balanced economic and residential growth while preserving the unique natural, scenic, and agricultural resources of Imperial County.

Objective 3.1 Maintain and improve the quality of life, the protection of property and the public health, safety, and welfare in Imperial County.

Objective 3.2 Preserve agriculture and natural resources while promoting diverse economic growth through sound land use planning.

Objective 3.3 Attain County growth and development patterns that are orderly, safe, and efficient utilizing appropriate financing resources.

Objective 3.4 Protect/improve the aesthetics of Imperial County and its communities.

Objective 3.5 Ensure safe and coordinated traffic patterns, contiguous growth, and promote a planned and consistent development around city/township areas.

Objective 3.6 Recognize and coordinate planning activities as applicable with the Bureau of Land Management (BLM), and the California Desert Conservation Plan.

Objective 3.7 Establish a continuing comprehensive long-range planning process for the physical, social, and economic development of the County.

Objective 3.8 Utilize non-agricultural land as a resource to diversify employment opportunities and facilitate regional economic growth. Uses must be consistent with each site's resource constraints, the natural environment, and the County Conservation and Open Space Element

Objective 3.9 Promote water recreation activities in Imperial County in suitable areas along the New, Alamo, and Colorado Rivers, and in the Salton Sea.

Objective 3.10 Identify and pursue funding sources for clean up of the New and Alamo Rivers and the Salton Sea.

Objective 3.11 All zoning within the County of Imperial shall be compatible with the General Plan.

Objective 3.12 Plan the County urban areas to have physical features, such as urban green belts, parks, or geographic/topographic features that distinguish one community (city) from another to avoid the future bland mega-city such as the LA basin.

Objective 3.13 Plan for more regional infrastructure systems to reduce the number of smaller treatment facilities to provide greater efficiency and opportunity to service areas that currently are unnerved or lack adequate services.

Objective 3.14 Encourage more regional cooperation and thinking among the elected bodies of the County.

Objective 3.15 Support the safe and orderly development of renewable energy in conformance with the goals and objectives of the Renewable Energy and Transmission Element.

Towns and Communities

Goal 4: Preserve and enhance distinctive historic desert towns and newer communities.

Objective 4.1 Preserve and enhance existing urban and rural communities.

Objective 4.2 Encourage distinctive community identities.

Objective 4.3 Maintain and require compatible land uses within the existing communities.

Objective 4.4 Limit the establishment of non-residential uses in predominantly residential neighborhoods and require effective buffers when appropriate non-residential uses are proposed.

Objective 4.5 Specific Plan Area designation should be used for outlying proposed growth areas in order to better determine appropriate land uses and the timing and financing for needed community facilities.

Housing Opportunities

Goal 5: Encourage the compatible development of a variety of housing types and densities to accommodate regional population projections and special housing needs.

Objective 5.1 Provide sufficient, suitable residential sites and housing supply to meet projected housing needs of all segments of the population.

Objective 5.2 Promote affordable housing for residents of all income groups, including low and moderate income households.

Industrial Development

Goal 6: Promote orderly industrial development with suitable and adequately distributed industrial land.

Objective 6.1 Provide adequate space and land use classifications to meet current and projected economic needs for industrial development.

Objective 6.2 Ensure that development in the areas surrounding military, public, and private airports are consistent with the Airport Land Use Compatibility Plans.

Objective 6.3 Protect industrial zoned areas from incompatible adjacent land uses and from under-utilization by non-industrial uses.

Extractive Resources

Goal 7: Identify and protect areas of regionally-significant mineral resources which are in locations suitable for extractive uses.

Objective 7.1 Provide adequate space and land use classifications to meet current and projected economic needs for extractive activities.

Objective 7.2 Require that extractive uses are designed and operated to avoid air and water quality degradation, including groundwater depletion, other adverse environmental impacts, and comply with the State Surface Mining and Reclamation Act and County Surface Mining Ordinance.

Public Facilities

Goal 8: Coordinate local land use planning activities among all local jurisdictions and state and federal agencies.

Objective 8.1 Coordinate with federal, state, and municipal agencies when planning for the acquisition and improvement of public parks and assure compatibility with adjacent communities and private property.

Objective 8.2 New developments shall provide improvements to meet the added demands for parks and recreational facilities.

Objective 8.3 Ensure that school facilities are adequate to meet the existing and projected needs of the population.

Objective 8.4 Ensure that all future proposed private and public facilities are adequate to meet expected population growth and the needed additional services around local cities.

Objective 8.5 At a minimum, provide adequate sites for solid/liquid and hazardous waste facilities to meet the current and projected demands of the County population and consistent with the County Solid Waste and Hazardous Waste Management Plans.

Objective 8.6 Ensure that land uses adjacent to or near existing waste disposal or storage facilities are compatible with those facilities.

Objective 8.7 Ensure the development, improvement, timing, and location of community sewer, water, and drainage facilities will meet the needs of existing communities and new developing areas.

Objective 8.8 Ensure that the siting of future facilities for the transmission of electricity, gas, and telecommunications is compatible with the environment and County regulation.

Objective 8.9 Require necessary public utility rights-of-way when appropriate.

Objective 8.10 Provide for the review of public transportation needs in order to accommodate countywide growth.

Protection of Environmental Resources

Goal 9: Identify and preserve significant natural, cultural, and community character resources and the County's air and water quality.

Objective 9.1 Preserve as open space those lands containing watersheds, aquifer recharge areas, floodplains, important natural resources, sensitive vegetation, wildlife habitats, historic and prehistoric sites, or lands which are subject to seismic hazards and establish compatible minimum lot sizes.

Objective 9.2 Reduce risk and damage from flood hazards by appropriate regulations.

Objective 9.3 Adopt noise standards which protect sensitive noise receptors from adverse impacts.

Objective 9.4 Coordinate with the Republic of Mexico to clean up the polluted New River and Alamo River in order to ensure public health and safety as well as recreational resources.

Objective 9.5 Establish policies and programs for maintaining salinity levels in the Salton Sea which enable it to remain a viable fish and wildlife habitat.

Objective 9.6 Incorporate the strategies of the Imperial County Air Quality Attainment Plan (AQAP) in land use planning decisions and as amended.

Objective 9.7 Implement a review procedure for land use planning and discretionary project review which includes the Imperial County Air Pollution Control District.

C. Relationship to Other General Plan Elements

The Land Use Policy Matrix (Table 3) identifies the relationship between the Land Use Element Goals and Objectives to other Elements of the Imperial County General Plan. The Issue Area identifies the broader goals of the Element and the "Xs" identify that related objectives are contained in the corresponding Elements.

TABLE 3 LAND USE ELEMENT POLICY MATRIX							
Issue Area	Housing	Circulation	Seismic/ Public Safety	Agricultural	Open Space Conservation	Renewable Energy	Water
Agricultural Preservation				X	X	X	X
Economic Growth				X		X	
Land Use Planning	X	X	X	X	X	X	X
Housing Opportunities	X	X					
Extractive Resources					X		
Public Facilities	X		X			X	
Environmental Sensitivity	X	X	X	X	X	X	X

Add the Parks and Recreation Element

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IV. IMPLEMENTATION PROGRAMS AND POLICIES

A. Preface

Both Attorney General opinions and court decisions have stressed the importance of the Land Use Element to regulate the use and intensity (both population and building) of land use areas. In that regard, each land use category identified herein has development standards that include population density and building intensity. Specific regulatory standards to implement the General Plan land use categories are contained within the County Zoning Ordinance.

Population density is defined as "the relationship between the number of dwelling units per acre and the number of residents per dwelling." Building intensity may be based upon a combination of variables such as maximum dwelling units per acre, permitted uses, height and size limitations. While some court decisions have defined population density as the number of people in an area, quantifiable standards must be stated for each land use category.

A key component of this Element is the Land Use Plan which delineates boundaries and establishes development standards for land use categories in order to maintain consistency and compatibility between uses and to classify the various land uses recognized by the General Plan. Land use categories are based on the existing land uses and the level of public facilities and services available to support new land uses.

B. Land Use Descriptions

The permitted uses and standards which follow in Section C describe types of agricultural or industrial uses with terms such as "light", "medium", or "heavy" and commercial uses as "neighborhood" or "general". For clarity, the meaning of these terms as used herein are described below. Also, residential is described as "dwelling units per acre" which shall mean per gross acre as described below.

Agricultural Uses

> Light Agriculture - Agricultural crop production such as field, forage, tree groves, vines, and other plant crops intended to provide food or fiber, as well as flowers and field or container plants including ornamental, landscape, agricultural, and native plants. Animal keeping, including aquaculture (fish farms), would not be a primary use, but may be allowed as a secondary or incidental use to be regulated by implementing zoning as to types of animals, numbers of animals per acre, minimum lot size for animal keeping, or setbacks from property lines for animal enclosures.

Medium Agriculture - Includes all agricultural crop production described above and permits animal keeping, including aquaculture, as a primary use. Implementing zoning may regulate types of animals, numbers of animals per acre, minimum lot size for animal keeping, or setbacks from property lines for animal enclosures. Incidental uses such as produce stands or on-site packing and processing of agricultural crops, may be permitted with limitations by implementing zoning.

Heavy Agriculture - Includes all agricultural crop production and animal keeping, including aquaculture, dairies, feed lots, and animal sales yards as a primary use. Implementing zoning may regulate numbers of animals per acre, minimum lot size for animal keeping, or setbacks from property lines for animal enclosures. Incidental uses such as produce stands may be permitted with limitations by implementing zoning. On-site packing and processing of agricultural crops and livestock, and farm labor camps, may be permitted with limitations by implementing zoning.

Industrial Uses

Light Industry - Refers to industrial plants, and storage, distribution, and administrative facilities, for uses engaged in manufacturing, compounding, processing, assembling, packaging, treatment, or fabrication of materials and products within an enclosed building. Implementing zoning may restrict use of certain products, processes, or manufacturing equipment due to external effects such as noise, odors, smoke, or dust. Uses which involve compounding of radioactive materials, manufacturing of certain hazardous gases or chemicals, petroleum refining or large petroleum storage facilities, or manufacturing of explosives would not be permitted.

Medium Industry - Refers to industrial plants, and storage, distribution, and administrative facilities, as described above, including uses conducted outside of an enclosed building. Implementing zoning may restrict use of certain products, processes, or manufacturing equipment due to external effects such as noise, odors, smoke, or dust. Uses which involve compounding of radioactive materials, manufacturing of certain hazardous gases or chemicals, petroleum refining or large petroleum storage facilities, or manufacturing of explosives would not be permitted.

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Heavy Industry - Refers to industrial plants, and storage, distribution, and administrative facilities, as described above, including uses conducted outside of an enclosed building. Implementing zoning may restrict use of certain products, processes, or manufacturing equipment due to external effects such as noise, odors, smoke, or dust; and may allow, with restrictions, uses which involve manufacturing of certain hazardous gases or chemicals, petroleum refining or storage, or manufacturing of explosives. Electrical and other energy generating facilities are heavy industrial uses, except, hydroelectric, and renewable energy facilities may be regulated differently than other types of power plants by implementing zoning including the RE Overlay Zone and Conditional Use Permit process. Other uses such as mining and processing of sand, gravel, rock, and other metallic or non-metallic minerals, landfills, and oil or gas drilling rigs, also exhibit characteristics similar to other heavy industrial uses but may be regulated differently by implementing zoning due to necessary location.

Commercial Uses

Light Commercial - Refers to commercial uses which provide for the sale of convenience goods, such as food, drugs and sundries, and personal services which meet daily needs of a local neighborhood trade area. Offices, convenient stores, small gasoline stations, eating and drinking establishments, and recycling collection facilities (not involving hazardous materials) are also permitted but may be limited or restricted by implementing zoning. Automobile painting and repair would not be permitted.

Medium Commercial - Refers to commercial uses as described above, as well as business and construction support services, personal and business storage facilities, supermarkets, commercial recreation, health clubs and spas, medical, financial, and other professional offices and facilities, hotels and motels, automobile and equipment sales and services. Some of these uses may be restricted by location in certain zones, or by other limitations of implementing zoning. Agricultural and animal services may also be permitted subject to limitations of implementing zoning.

Heavy Commercial – Refers to commercial uses that are of regional convenience. This includes uses described above as well as larger retail outlets, regional centers and home improvement stores. Heavy commercial shall be located adjacent to major highways, freeways, or other significant circulation corridors.

Residential Uses

Dwelling Unit - Refers to a single unit providing complete, independent living facilities, including permanent provisions for living, sleeping, eating, cooking, and sanitation, and having only one kitchen. A dwelling unit includes a single family detached home (including manufactured homes), or each of the attached units in a duplex, apartment building, or residential condominium. Hotel and motel units are not dwelling units or residential uses. Lodging or boarding houses, and group living quarters are residential uses which are regulated by zoning, but are not included as "dwelling units per acre".

Dwelling units per acre - Is a statement of residential density which, for the County of Imperial, would result in an approximate average population of 3.0 to 3.5 persons per dwelling unit allowed per acre. For purposes of the County General Plan it shall mean dwelling units per gross acre and shall be determined for each separate and individually owned lot or parcel based on the gross area within the exterior boundary lines of a property. Existing public rights-of-way, railroad rights-of-way, and canals or drains shall be excluded from the gross area when calculating permitted dwelling units.

Density Bonus Per State Law - The California Government Code, Section 65915 et seq., requires each city and county to provide incentives, which may include a 35 percent density bonus, reduced parking requirements etc. for development of lower income housing units in residential projects of five or more dwelling units. This provision, as presently stated in the Government Code or as it may hereafter be amended, is applicable to the Imperial County General Plan. For more information, please refer to the Housing Element of the General Plan.

C. Land Use Designations and Standards

In order to define a clear distribution of development and preservation, the following categories have been defined: Agriculture, Community Area, Government/Special Public, Industry, Recreation/Open Space, Special Purpose Facility, Specific Plan Area, and Urban Area.

The following designations and standards rely on the land use descriptions specified above. Where uses are indicated as permitted in a land use category, limitations on such uses may be required by implementing zoning, such as limiting the location or intensity of such a use, or by requiring a conditional use permit and a site-specific environmental assessment, or other form of discretionary review.

1. Agriculture

This category is intended to preserve lands for agricultural production and related industries including aquaculture (fish farms), ranging from light to heavy agriculture. Packing and processing of agricultural products may also be allowed in certain areas, and other uses necessary or supportive of agriculture. The Agriculture category includes most of the central irrigated area known as the Imperial Valley, the Bard/Winterhaven Valley and the south end of the Palo Verde Valley.

Where this designation is applied, agriculture shall be promoted as the principal and dominant use to which all other uses shall be subordinate. Where questions of land use compatibility arise, **the burden of proof shall be on the non-agricultural use to clearly demonstrate that an existing or proposed use does not conflict with agricultural operations and will not result in the premature elimination of such agricultural operations.** No use should be permitted that would have a significant adverse effect on agricultural production, including food and fiber production, horticulture, floriculture, or animal husbandry. All non-agricultural uses in any land use category shall be analyzed during the subdivision, zoning, and environmental impact review process for their potential impact on the movement of agricultural equipment and products on roads located in the Agriculture category.

No land shall be removed from the Agriculture category except for annexation to a city, where needed for use by a public agency, for renewable energy purposes in accordance with the Renewable Energy and Transmission Element, where a mapping error may have occurred, or where a clear long term economic benefit to the County can be demonstrated through the planning and environmental review process.

Residential Development Standards:

> Very low density residential land uses with not more than 1 single family dwelling unit per 40 acres or per legal parcel.
>
> Land shall not be subdivided for residential development.

A defined area of land consisting of a multitude of smaller parcels, which are each less than 10 acres in size, with an aggregate of less than 40 acres (at adoption of this plan), that is already impacted with residential units of 5 or more contiguous residences may, on a case by case basis be considered for further subdivision. Small existing parcels less than 15 acres in size that cannot be combined with larger parcels due to geographic or topographic features may on a case by case basis and with appropriate findings be considered for submission into parcels not less than 25% of their original size and in no case for more than four lots. Provided also that approved potable water and approved waste

disposal facilities will be provided. (Reference standards for evaluation in the Agriculture Element, Exhibit "C", page C-1 to C-3).

Agricultural employee housing may be permitted with a Conditional Use Permit and environmental review to determine that continued agricultural use will not be adversely impacted.

Building height maximum of 35 feet.

Commercial Development Standards:

Commercial uses are not permitted except those directly associated with sales of agricultural goods such as feed, grain, fertilizers, pesticides.

Maximum floor area ratio not greater than 1:1 (i.e., 1 square foot of gross building area per 1 square foot of area within the lot or building site).

Maximum building height of 35 feet.

No lot or building site shall have more than 50 percent of its net area covered with buildings or structures.

A minimum of 25 percent of the front lot area shall be landscaped.

Industrial Development Standards:

Industrial uses are not permitted except those directly associated with agricultural products and processes. This would include cotton gins, dehydration mills, seed mills, fruit, vegetable, meat and fish packing plants, hay storage and shipping, and nut shelling and cooking. Implementing zoning may require a Conditional Use Permit for some or all of these industrial uses.

Renewable Energy projects may be permitted with an appropriate Conditional Use Permit subject to zoning and environmental review.

Maximum floor area ratio not greater than 1:1 (i.e., 1 square foot of gross building area per 1 square foot of area within the lot or building site).

Building height maximum of 50 feet. A lesser height may be required by the Airport Land Use Compatibility Plan.

Industrial land uses should locate in areas where high noise levels will not impact existing or planned noise sensitive land uses.

Industrial uses within this category must locate in areas having access to major transportation systems or must make provision for adequate

transportation systems. Distribution facilities, such as truck transport terminals, are not allowed in this category.

A minimum of 25 percent of front lot area shall be landscaped.

Open Space/Recreation Standards:

Open space and recreation land uses within this category consists of environmentally sensitive areas, parks, fault zones, floodways and floodplains, agricultural lands, and areas designated for the managed production of mineral resources.

Commercial recreation enterprises including hunting clubs, fishing lakes, equestrian centers, dude ranches, and similar uses, however, a conditional use permit may be required by implementing zoning regulations for some types of commercial recreation enterprises.

Mobile home parks and recreational vehicle parks and campgrounds are strictly prohibited.

Solid and Liquid Waste Disposal Facilities:

Landfills, and or other waste disposal/treatment facilities a are not allowed within this category.

2. Community Area

The Community Area category represents land uses associated with the unincorporated communities of Hot Mineral Spa/Bombay Beach, Ocotillo/Nomirage, and Palo Verde. Their land use orientation is primarily toward relatively low density second home and retirement dwellings and recreational services, rather than urban residential, commercial, and industrial uses. Community Areas usually include small local- and tourist-serving central business districts with a rural orientation.

Urban services, including sewer, water, and physical improvements such as curbs and sidewalks are limited. Ocotillo/Nomirage is provided water service by private water companies and individual water wells; Palo Verde by the Palo Verde County Water District; and Hot Mineral Spa/Bombay Beach by the Coachella Valley Water District. Only Bombay Beach has a public sewage system, also operated by the Coachella Valley Water District, the others rely on subsurface septic systems or facilities operated by mobile home and RV parks. Except in the Hot Mineral Spa area, future growth is expected to consist primarily of infill on existing lots, rather than expansion of community boundaries, except at very low densities. The designation of "Community Area" is not intended to preclude incorporation of a particular community.

All development within Community Areas shall also be reviewed by affected local agencies and County departments to determine that an adequate level of public services exist to serve the proposed project. This would include the off-site circulation system (County Department of Public Works), adequate water supply and pressure for fire suppression (County or City Fire Marshal), police services (County Sheriff or City Police Department), schools (local school district and County Department of Education), potable water (local water district), sewage disposal (local sanitation district or County Health Department), local park facilities (County Parks and Recreation Department), and other services which the Planning/Building Department may identify as impacted.

Residential Development Standards:

Residential land uses at a population density from less than 1 dwelling unit per acre to a maximum of 4 dwelling units per acre. Higher densities may be allowed pursuant to an approved "Master Plan" for the overall Community Area where adequate public infrastructure exists.

Residential building intensity is determined by available public facilities and services and physical or environmental factors which may affect the site, including soil characteristics, groundwater conditions, etc.

New residential development must be consistent with the existing character of the community.

A minimum lot size of 20,000 square feet (net area exclusive of road and other easements) is required for new residential units where sewer service is not presently available. A larger lot size may be required for an on-site sewage disposal system to be approved by the County Environmental Health Services Division. Smaller lots may be considered if the approving agencies accept an engineered alternative that can provide the same or better level of sewage treatment. The purpose is to allow for changing technology to be considered and therefore allow for better land utilization.

An on-site potable water supply approved by the County Health Department is required for all residential development.

Commercial Development Standards:

Low to medium intensity commercial land uses, which can be shown to be compatible with adjacent existing or planned residential uses, including neighborhood and general commercial uses. Only neighborhood commercial uses will be permitted in the Ocotillo/Nomirage Community Area.

Maximum floor area ratio not greater than 2:1 (i.e., 2 square feet of gross building area per 1 square foot of area within the lot or building site).

Building height maximum of 50 feet (consistent with C-1 zone).

A minimum of 10 percent of the lot area shall be landscaped. A greater percentage of landscaping may be required for projects involving discretionary review.

Industrial Development Standards:

Manufacturing/industrial zoning and land uses are generally not permitted in this category. Implementing zoning may allow limited assembly and manufacturing of "craft" items such as stained glass, pottery, wood, and fabric products. Zoning for more intensive industrial use may be allowed pursuant to an approved Master Plan for the overall Community Area where adequate public infrastructure exists.

Agricultural Land Use Standards:

Agricultural land uses within this category consist of light and medium agricultural uses.

Agricultural land uses located within the Community Area category may be subject to limitations with respect to animal keeping, setbacks, building height, and other regulations of the County Zoning Ordinance.

Due to potential groundwater overdraft conditions, commercial agricultural uses are prohibited in the Ocotillo-Coyote Wells groundwater basin.

Open Space/Recreation Standards:

Open space land uses within this category consist of environmentally sensitive areas, fault zones, flood ways and flood plains.

Recreational land uses within this category are limited to recreational vehicle parks and uses which consist primarily of outdoor facilities such as parks, athletic fields, golf courses, and swim and tennis clubs. Other more intensive commercial recreation uses may be allowed pursuant to an approved Master Plan for the overall Community Area where adequate public infrastructure exists. Due to potential groundwater overdraft conditions, only passive recreation uses are allowed in the Ocotillo-Coyote Wells groundwater basin.

Solid and Liquid Waste Disposal Facilities:

Landfills and hazardous waste storage and transfer stations or treatment facilities are not allowed within this category. Municipal solid waste

transfer and recycling stations may be permitted with appropriate zoning and environmental review.

3. Government/Special Public

This designation indicates lands generally owned by public agencies which are presently, and for the foreseeable future, used for a specific governmental purpose. This designation includes military bases, schools or school related facilities and public parkland and may also be applied to airports, sewer and water facilities, cemeteries, and other public utilities and facilities.

Federal Lands:

The County has no jurisdiction over federally-owned lands and the use and intensity on such lands will be determined by the appropriate federal agency, such as the Department of the Navy for the Naval Air Facility and bombing ranges which are designed Government/Special Public. Also in this category are the Salton Sea, Cibola, and Imperial National Wildlife Refuges.

Land uses on Indian Reservations are also not regulated by the County. These lands, however, are generally not designated Government/Special Public. The Quechan and Fort Yuma Indian Reservations in the southeastern corner of the County are generally designated Agriculture. Portions of the Torres-Martinez Indian Reservation in the northwestern corner of the County are designated Recreation/Open Space or Urban Area.

State Lands:

Portions of four California State Parks are within Imperial County: Anza Borrego Desert State Park, Ocotillo Wells State Vehicle Recreation Area, Salton Sea State Recreation Area, and Picacho State Recreation Area. Use of these lands, which are designated Government/Special Public, are under the jurisdiction of the State Department of Parks and Recreation.

County and Other Local Agency Lands:

Existing County Parks are Sunbeam Lake, Wiest Lake, Red Hill Marina, Heber Dunes, Walker Park, and Palo Verde Park, most of which are designated Government/Special Public. Other local agency lands may also be placed within this land use category.

Private Lands:

Where private land, such as in holdings, exist within an area designated Government/Special Public, the Development Standards shall be the

same as for the Recreation/Open Space category. Development of such lands shall also be evaluated for compatibility with existing and planned uses on nearby public lands.

4. Industry

Industrial land uses within this category consist of heavy manufacturing land uses located in areas with the necessary supporting infrastructure and located away from conflicting existing or planned land uses. Generally, these lands are not suitable for agricultural use and are located adjacent to major transportation systems.

The Industry category is intended to designate areas outside of existing cities where heavy industrial uses exist, such as Plaster City, or can be accommodated without impacting residential or agricultural land uses. Zoning to allow heavy industrial uses may be applied to these areas, and may also be applied to certain Specific Plan Areas, but should not be applied in other unincorporated areas of the County or in other land use designations of the General Plan.

Residential Development Standards:

Residential land uses are limited to one single family dwelling unit if appurtenant to a permitted industrial or commercial use and occupied by a caretaker, custodian, or night watchman when on the same lot as the industrial use and only upon the issuance of a conditional use permit by the Planning/Building Department or Planning Commission.

Industrial Development Standards:

Heavy manufacturing land uses.

Maximum floor area ratio not greater than 4:1 (i.e., 4 square feet of gross building area per 1 square foot of area within the lot or building site).

A minimum of 10 percent of the lot area shall be landscaped.

Building height maximum of 150 feet, except where a lesser height is required by the Airport Land Use Compatibility Plan.

Industrial uses should locate in areas where high noise levels will not impact existing or planned noise sensitive land uses.

Prior to any zone reclassification to allow industrial use, potential significant impacts associated with the proposed rezone and appropriate mitigation shall be identified pursuant to the California Environmental Quality Act (CEQA).

Industrial uses within this category should locate in areas having access to major transportation systems.

Commercial Development Standards:

General commercial land uses which are necessary to and/or supportive of permitted industrial uses. This would include agricultural and horticultural sales, and equipment sales and services for business, industrial, construction, and agricultural purposes.

Maximum floor area ratio no greater than 2:1 (i.e., 2 square feet of gross building area per 1 square foot of area within the lot or building site).

Building height maximum of 35 feet.

A minimum of 10 percent of the lot area shall be landscaped.

Solid and Liquid Waste Disposal Facilities:

Landfills are prohibited within this category.

Hazardous waste treatment, incineration, recycling, stabilization/ solidification, residual repository, and transfer/ storage facilities may be sited but must be consistent with the siting criteria of the Imperial County Hazardous Waste Management Plan and the County Integrated Waste Management Plan and require a conditional use permit.

5. Open Space/Recreation/Preservation

The Open Space/Recreation/Preservation categories recognizes the unique recreational character of Imperial County and includes desert, mountain, and waterfront areas with the potential for development as public or private parks and recreation facilities in appropriate areas. Primarily, however, areas designated Open Space/Recreation/Preservation are characterized by a low intensity of human utilization and include mountain areas, sand dunes, desert lands and other open lands that are essentially unimproved and not predominantly used for agriculture. The majority of the land in this category is public land administered by the U.S. Bureau of Land Management (BLM) and owned by either BLM or the U.S. Bureau of Reclamation.

Recreation-related uses include mobile home and recreational vehicle parks, and resort and recreation facilities. Development is a mixture of seasonally and permanently occupied residential units, recreation facilities, community facilities, and neighborhood commercial activities. Examples include Sunbeam Lake, Imperial Lakes, Rio Bend, Red Hill Marina, Goldrock Ranch, and Colorado River camps such as Mitchell Camp and Walter's Camp. Additional recreation sites potentially include the New and Alamo Rivers, and the Salton Sea. These

waters, however, must be cleaned up before they can be promoted as recreational resources so as not to jeopardize the health and safety of users.

Uncontrolled desert residential development has occurred in this area in past; examples are Imperial Gables and Milpitas Wash areas in northeastern Imperial County where no water, sewer, electrical, or telephone services exist. Further development of this type shall be restricted to dwellings in compliance with the Uniform Building Code and which can be supported by adequate public access, potable water, and sewage disposal satisfactory to the County Environmental Health Services Division.

Some areas designated Open Space/Recreation/Preservation contain soils suitable for agriculture, such as the East and West Mesa and Pilot Knob Units of Imperial Irrigation District, which are predominately owned by the Bureau of Land Management and not presently improved for agricultural cropland. Other areas designated Recreation/Open Space may be suitable for aquaculture, particularly where favorable groundwater conditions exist. Agricultural uses are, therefore, permitted in the Open Space/Recreation/Preservation category.

The Open Space/Recreation/Preservation category also includes lands for the preservation of natural resources; areas for the recharge of groundwater basins; rivers and lakes which are important as wildlife habitat and for the enjoyment of recreational sport fishing; areas for the conservation and managed production of mineral resources; and areas for the preservation of areas of outstanding scenic, historic and cultural value. It is intended that this category also be used to protect public health and safety, including areas that require special management or regulation because of hazardous or special conditions such as earthquake fault zones, unstable soils, flood plains, watersheds, and other areas required for the protection of water quality.

Residential Development Standards:

Low density land uses with not more than 1 single family dwelling per 20 acres. Maximum allowed residential use for Open Space/Recreation/ Preservation is one residence per acre. Greater densities may be permitted by Specific Plan encompassing at least 160 acres for appropriate recreation-oriented residential development where adequate facilities and services for such use exist or can be provided.

Residential building intensity is determined by available public facilities and services and other factors which may affect the site.

An on-site potable water supply and sewage disposal satisfactory to the County Health Department.

Maximum building height of 35 feet.

No lot shall have more than 50 percent of its net area covered with buildings or structures.

Agricultural Land Use Standards:

Light to medium agricultural land uses including row and field crops, orchards, aquaculture, grazing, and apiaries where groundwater resources (or imported water) are adequate to support agricultural production without impact to existing domestic water wells or community water supplies.

Agricultural uses are prohibited on all areas administered by the BLM and the U.S. Fish and Wildlife Service, and on private lands that are in holdings in "Areas of Critical Environmental Concern" (ACEC).

Open Space/Recreation Standards:

Open space land uses within this category consist of environmentally sensitive areas, fault zones, floodways and floodplains, undeveloped desert lands, parks, and areas designated for the managed production of natural resources.

Recreational land uses within this category are limited to recreational vehicle parks and uses which consist primarily of outdoor facilities such as parks, athletic fields, golf courses, swim and tennis clubs, and off-road vehicle use areas.

Intensive recreational development within this category is prohibited in areas designated by BLM as "Areas of Critical Environmental Concern" or in a National Wildlife Refuge. These areas will be preserved in the General Plan for biological resources. Unauthorized entry is prohibited by the U.S. Fish and Wildlife Service into a National Wildlife Refuge.

Solid and Liquid Waste Disposal Facilities:

Landfills and hazardous waste facilities are not allowed within this category, with the exception of maintaining existing facilities.

6. Special Purpose Facility

This designation may be applied to lands which are necessary for basic governmental services which have physical or operational characteristics incompatible with most other land use categories. In particular, noise, odors, air and water quality impacts, aesthetics, and traffic may create dangerous or objectionable conditions.

Permitted uses are subject to approval of a Conditional Use Permit and include Class I, II, and III solid and liquid waste facilities, prisons, and general aviation airports, or sites approved for those purposes. It is the intent of this designation that such proposed and existing facilities be protected from encroachment by development or incompatible land uses.

Solid Waste Facility Development Standards:

All new solid waste facilities, including all classes of landfills, which receive local and state approval shall be placed within this category through a General Plan Amendment, if not already so designated and operating in conformance with an approved Conditional Use Permit. The designation shall include all contiguous or adjacent lands owned or otherwise controlled by the individual, corporation, or other entity which owns, operates, or proposes to own or operate, the landfill in order to provide an adequate buffer from other land uses. The minimum required buffer for any area proposed for the permanent placement of solid waste (i.e., the actual landfill portion of the facility) shall be 1,320 feet (one-quarter mile) from any lands not owned or controlled by the landfill owner or operator. Where public lands dedicated to open space uses or landfill related industrial development or mining operations are located within the said 1,320 feet, the buffer may not be required as determined by the public agency. The potential long term environmental impacts to the neighboring land uses or development may be considered in making this determination.

All solid waste facilities shall conform to the County Integrated Waste Management Plan (COIWMP), when adopted, and shall be subject to approval of a conditional use permit pursuant to the County Zoning Ordinance which shall specify standards for the establishment, operation, and closure of such facility and related or buffer-area land uses. Additional review and approval is required from the California Integrated Waste Management Board (CIWMB) and the County of Imperial Health Department acting as the Local Enforcement Agency (LEA) designated by the CIWMB. Review and/or approval by the following agencies is also required in most cases: Imperial County Air Pollution Control District, County Department of Public Works, State Water Resources Control Board, State Air Resources Board, State Department of Fish and Game, U.S. Environmental Protection Agency, and U.S. Fish and Wildlife Service. Due to the large amount of land in Imperial County under the control of the U.S. Bureau of Land Management, approval by that agency may also be required.

Related Landfill Facilities:

In addition to the landfill itself, the solid waste facility may include necessary and incidental support and operations facilities including intermodal transfer facilities (e.g., from rail line to truck), equipment repair, maintenance, and storage, administration and employee buildings, fueling

and petroleum products storage, water reclamation and treatment facilities, landfill gas and energy recovery facilities, electrical substation, and water storage tanks or reservoirs.

Other Permitted Uses:

Other uses may be permitted within the Special Purpose Facility land use designation which provide a necessary governmental or public service use not appropriate in other land use designations or for which suitable land is not adequately available.

Also permitted are uses which are appropriate, supportive, or compatible with the principal Special Purpose Facility use of the site. Such uses shall be described in the conditional use permit and other local, state, and federal approvals as may be required and may include: commercial, industrial, agricultural uses; facilities operated by public agencies or public utilities, renewable energy facilities, solid waste sorting, recovery, and recycling facilities; mining and processing of mineral, aggregate, or other natural resources; private or public parks or recreation facilities; employee residences where not subject to adverse air quality or other impacts incompatible with residential use.

7. Specific Plan Area

The Specific Plan Area (SPA) designation may be used where a Specific Plan has been approved or must be approved prior to development. Land within this category usually has environmental constraints or unique land use concerns or opportunities which require special land use and/or design control. Suitable areas may also include lands proposed for large-scale urban development, for natural resource protection or historic preservation, or other use requiring more detailed planning than would typically be required by the County Zoning or Subdivision Ordinances.

Development Standards:

Application of the Specific Plan Area designation shall be accompanied by adoption of Objectives and Policies for the design, development, and use of such areas. This may include residential, commercial, industrial, agricultural, recreational, open space, and public uses. Except as provided below, once land is designated as a Specific Plan Area no use other than agriculture may be established and no major or minor tentative subdivision map or zone reclassification to a more intensive zone shall be approved except in accordance with an approved Specific Plan. Future development within the vicinity of the Holtville Airport shall not preclude the long-term viability of the airstrip to be developed as a regional airport.

Interim Uses:

Prior to the approval of a Specific Plan, land within this category may be used for agriculture or underlying zone, unless such interim use is specifically prohibited by the Objectives and Policies of the particular Specific Plan Area. Other interim uses may be permitted by the County Board of Supervisors which are consistent with the Goals and Objectives of the General Plan upon specific findings clearly showing consistency. Interim uses are subject to Zoning Ordinance and CEQA review and such conditions of approval as are necessary or appropriate.

8. Urban Area

The Urban Area Classification on the Land Use Plan includes areas surrounding the seven incorporated cities; Brawley, El Centro, Westmorland, Holtville, Calipatria, Imperial and Calexico. Urban Areas also include the unincorporated communities of Niland, Heber, Seeley, Winterhaven and West Shores/Salton City. These areas are characterized by a full level of urban services, in particular public water and sewer systems, and contain or propose a broad range of residential, commercial, and industrial uses.

It is anticipated that these areas will eventually be annexed or incorporated and should be provided with the full range of public infrastructure normally associated with cities. Therefore, development in these areas shall provide for the extension or development of full urban services such as public sewer and water, drainage improvements, street lights, fire hydrants, and fully improved paved streets with curbs and, in many cases, sidewalks. If located within an urban area, such improvements shall be consistent with City standards as determined by the City. In cases where the Urban area is located in the unincorporated communities (i.e. Heber, Seeley, etc.) improvements shall be consistent with County standards as determined by the County engineer, department of Public Works, Fire/OES, Environmental Health Services, and Planning & Development Services.

All development within Urban Areas shall also be reviewed by affected local agencies and County departments to determine that an adequate level of public services exist to serve the proposed project. This would include the off-site circulation system (County Department of Public Works), adequate water and pressure for fire suppression (County or City Fire Marshal), police services (County Sheriff or City Police Department), schools (local school district and County Department of Education), potable water (local water district), sewage disposal (local sanitation district or County Health Department), local park facilities (County Parks and Recreation Department), and other services which the Planning/Building Department identifies as impacted. In areas potentially affected by airport operations, developments shall be reviewed for conformance to the Airport Land Use Compatibility Plan.

Residential Development Standards:

Residential land uses at a population density of 1 to a maximum of 29 dwelling units per acre.

Residential building intensity is determined by available public facilities and services and physical or environmental factors which may affect the site.

New residential development must be consistent with the existing character of the community.

New residential development within the vicinity of airports must be consistent with the Airport Land Use Compatibility Plan

Commercial Development Standards:

Low to high intensity commercial land uses including professional offices, neighborhood and general commercial uses.

Maximum floor area ratio not greater than 2:1 (i.e., 2 square feet of gross building area per 1 square foot of area within the lot or building site).

Building height maximum of 75 feet or as provided by the Airport Land Use Compatibility Plan.

A minimum of 10 percent of the lot area shall be landscaped. A greater percentage of landscaping may be required for projects involving discretionary review.

New commercial development within the vicinity of airports must be consistent with the Airport Land Use Compatibility Plan.

Industrial Development Standards:

Light and medium industrial land uses.

Maximum floor area ratio not greater than 3:1 (i.e., 3 square feet of gross building area per 1 square foot of area within the lot or building site).

Building height maximum of 80 feet or as provided by the Airport Land Use Compatibility Plan.

Industrial uses should locate in areas where high noise levels will not impact existing or planned noise sensitive land uses.

Significant impacts associated with the proposed land use must be mitigated.

Industrial land uses within this category should locate in areas having access to major transportation systems.

A minimum of 10 percent of the lot area shall be landscaped. A greater percentage of landscaping may be required for projects involving discretionary review.

New industrial development within the vicinity of airports must be consistent with the Airport Land Use Compatibility Plan.

Agricultural Land Use Standards:

Agricultural land uses within this category consist of light and medium agricultural uses.

Agricultural land uses located within the Urban Area category may be subject to limitations with respect to animal keeping, setbacks, building height, and other regulations of the County Zoning Ordinance.

Open Space/Recreation/Preservation Standards:

Open space land uses within this category consist of environmentally sensitive areas, fault zones, floodways and flood plains, and agricultural lands. Recreational land uses within this category consist of both outdoor and indoor facilities such as parks, athletic fields, recreational vehicle parks, and commercial sports enterprises such as golf courses, health and athletic clubs, and bowling alleys.

Solid and Liquid Waste Disposal Facilities:

Landfills and hazardous waste storage and transfer stations are prohibited within this category.

Solid waste transfer and recycling stations may be permitted with appropriate zoning and environmental review.

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D. Compatibility Matrix

The primary purpose of a compatibility matrix is to provide a means to evaluate and achieve compatibility between the general plan and zoning ordinance. A matrix can be used to compare the land use categories of the general plan with the zoning districts and corresponding development standards of the Zoning Ordinance.

To illustrate the extent of zoning compatibility with the general plan, the Imperial County Consistency Matrix features the following categories:

- ○ Compatible: Zones that are compatible with the General Plan Designation
- ■ Incompatible: Zones that are not compatible with the General Plan Designation
- ● Conditionally Compatible: Zones that the County could find compatible under certain circumstances, but that generally are not compatible

The conditionally compatible category is zoning that is not by itself compatible, but could be found to be compatible under unique or unusual circumstances. Such circumstances would include zoning needed to accommodate an existing legal or legal non-conforming use; when additional density or use restrictions can be included by use of an "overlay" or "combining" zone; or where a Specific Plan, conditional use permit (CUP) or other discretionary permit can be required for a proposed use and mitigating measures can be imposed to reduce or eliminate potential land use conflicts.

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TABLE 4
COMPATIBILITY MATRIX

Land Use Categories	ZONES																			
	R-1	R-2	R-3	R-4	G/S	A-1	A-2/A2-R	A-3	AM-1	AM-2	C-1	C-2	C-3	M-1	M-2	M-3	S-1	S-2	G	L
Agriculture	■	■	■	■	■	■	○	○	○	○	■	●	●	■	■	■	●	●	○	■
Community Area	○	●	●	●	●	●	■	■	■	■	○	○	■	●	■	■	○	○	○	○
Government/ Special Public	■	■	■	■	■	■	●	●	●	●	■	■	■	■	■	■	○	○	○	■
Industry	■	■	■	■	●	■	●	●	●	●	●	●	●	○	○	○	■	○	○	○
Recreation/ Open Space	■	■	■	■	○	■	○	○	○	○	■	●	■	■	■	■	○	○	○	■
Rural Residential	■	■	■	■	○	○	●	●	●	●	■	●	■	■	■	■	○	○	○	○
Special Purpose Facility	■	■	■	■	■	■	●	●	●	●	■	■	■	■	●	●	■	●	●	●
Specific Plan Area	●	●	●	●	■	■	●	●	●	●	●	●	●	●	●	●	●	○	●	●
Urban Area	○	○	○	○	●	○	■	■	■	■	○	○	○	○	■	■	●	○	○	○

Note: Matrix modified to reflect the 1998 Land Use Ordinance Update.

E. Implementation Policies and Programs

Implementation of the Land Use Element is intended to be a continual process involving amendments to the County Zoning Ordinance and Zoning Maps, and discretionary review of proposed subdivisions and conditional use permits; and also involving ministerial review procedures to assure that proposed development has adequate potable water and sewage disposal, and to determine that no hazard to public health or safety will result from flooding, earthquakes, unstable soil, or other natural hazards.

1. Agriculture

Policy

Residential encroachment into agricultural areas has resulted in land use conflicts and potentially unhealthful conditions for residents due to tilling of fields and use of farm chemicals on crops. This situation also often leads to reduction in agricultural production due to complaints from new residents. The County strongly supports continued agricultural use of all areas designated "Agriculture" and exclusion of incompatible residential uses.

Program

- Existing areas designated Agriculture which are zoned A-1 will not be considered in conformance with the Agriculture land use designation and should be rezoned to the A-2 or other existing or new agricultural zone which requires a minimum lot size of 40 acres.

Policy

Over 50 old subdivisions, most in agricultural areas, have the potential to develop with incompatible residential uses. If this occurs, land use conflicts and complaints from new residents are likely to result. Procedures should be established to assure that residential development of old subdivisions do not result in conflicts with continued agricultural use.

Program

- Evaluate existing zoning of all old subdivisions in areas designated Agriculture. Consider creation of a new zone or overlay zone which would permit residences only if specific findings are made by the Board of Supervisors that continued agricultural use of surrounding lands will not be impacted and that adequate public infrastructure exists to support residential use, including on- and off-site roads, sewage disposal, and potable water. Without an approved potable water supply and an approved wastewater treatment system, these subdivisions shall not allow for individual lots to be developed..

Policy

The County of Imperial finds that farmland is one of its most vital resources. Continued preservation of this resource is paramount. The County is committed to the Williamson Act and its ideals of preserving Farmland. Since 2000 the County has put over 126,000 acres into the program. The purpose of the Williamson Act is to establish long term (10 year perpetual) contracts for the preservation of farmland. The Department of Conservation finds that "…a loss of agricultural land represents a permanent reduction in the State's agricultural land resources…" (November 2005 letter). As a way to mitigate this potential significant impact, the County concurs with the Department of Conservation's stance on preserving additional farmland to replace the loss of farmland resulting from development.

Program

- The developer, property owner, or agency (applicant) of a "Development project" located on land designated by the General Plan Land Use Map (Land Use Element- Figure 1) as "Agricultural" that will result in the direct and total loss of Prime Farmland in excess of 40 acres, shall provide not-

less-than 100% for un-contracted and 150% for contracted land, replacement land. Said replacement land shall to be placed under Williamson Act Preservation Contract(s). Said land shall presently have water availability (not fallowed), cultivated and located outside the path of development. This shall be accomplished one of three ways:

(1) Place additional, applicant owned but un-contracted qualifying farmland into a new Williamson Act Preservation Contract.

(2) Place additional land through procurement of new un-contracted qualifying farmland into a new Williamson Act Preservation Contract.

(3) Applicant shall find a third party sponsor to voluntary place their qualifying un-contracted farmland into the County of Imperial's Williamson Act Program.

The replacement land shall be of the quality as the land proposed to be removed. For example if the land is identified as "Prime Farmland" then the replacement land shall be "Prime Farmland."

The replacement land shall be outside of the path of development and subject approval by the Imperial County Planning & Development Services Department. Outside of the path of development shall mean not-less-than two miles from a development area (i.e. city, townsite, community area, industrial or commercial area, etc.).

Policy

The General Plan covers the unincorporated area of the County and is not site specific, however, a majority of the privately owned land is located in the area identified by the General Plan as "Agriculture," which is also the predominate area where Burrowing Owls create habitats, typically in the brims and banks of agricultural fields.

Program

- Prior to approval of development of existing agricultural land either in form of one parcel or a numerous adjoining parcels equally a size of 10 acres or more shall prepare a Biological survey and mitigate the potential impacts. The survey must be prepared in accordance with the United States Fish and Wildlife and California Department of Fish and Game regulations, or as amended.

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2. Industry

Policy

New industrial development is essential to maintaining a viable County economy. Areas designated Industry or planned for industrial development, such as the Mesquite Lake SPA and Gateway of America's, need to be protected from incompatible surrounding development, in particular residential.

Program

- Review existing zoning within and adjacent to areas designated Industry. Agricultural zones, with a prohibition on residential development, are preferred adjacent to Industry. Prohibit new residences within areas designated Industry except for managers or caretakers. Where existing or planned residential areas are adjacent to industrial areas, require light industrial uses as a transition zone on the perimeter of planned industrial areas.

3. Urban Areas

Policy

A primary concern for new development in Urban Areas, particularly those which are adjacent to incorporated cities, is the adequacy of existing public services and facilities, and the level of infrastructure improvements proposed by new development.

Program

- All proposed subdivision development and new multiple family, commercial, and industrial development within the Urban Area category, shall be required to provide full public street and drainage improvements, including the installation of curb and gutter, sidewalks, sewers and potable water. Such improvements shall comply with that City's design and improvement standards.

Policy

Existing County zoning regulations in agricultural, commercial, and industrial zones enable residential development which conflicts with planned uses envisioned by the General Plan and results in land use conflicts and loss of potential County fiscal benefits from lands zoned for commercial or industrial uses.

Program

- County zoning maps shall be amended to conform to the Urban Area designation; and the County Zoning Ordinance shall be amended to prohibit residential as a principal use in commercial and industrial zones.

4. Air Quality

Policy

The County of Imperial air basin has been classified by the U.S. Environmental Protection Agency (U.S. EPA) as an area of “moderate” to a “serious” non-attainment for PM10 and other air emissions. According to the National Clean Air Act (CAA), “serious” non-attainment areas are required to implement the more stringent Best Available Control Measures (BACM) requirements while moderate non-attainment areas are required to implement the less stringent Reasonable Available Control Measures (RACM). Therefore new and existing developments will need to meet all pertinent Local, State, and Federal Air pollution emissions standards and be subject to an air permit by the Local Air Pollution Control District.

Program

Prior to approval of development the project proponent shall comply with the Local Air Pollution Control District current air quality attainment regulations in effect at the time of development.

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APPENDIX A

GATEWAY OF THE AMERICAS SPECIFIC PLAN

APPENDIX B

MESQUITE LAKE SPECIFIC PLAN

APPENDIX C

RIO BEND SPECIFIC PLAN

APPENDIX D

IMPERIAL LAKES (SKI LAKES) SPECIFIC PLAN

APPENDIX E

McCABE RANCH SUBDIVISION SPECIFIC PLAN

APPENDIX F

RIVER FRONT SPECIFIC PLAN

Appendix D

Advertisement for Public Hearing

ca's only supervised injection facility, established 13 years ago in Vancouver, British Columbia.

Canadian Sen. Larry Campbell, who helped establish the facility as Vancouver mayor, joined Eggman in Sacramento to support her proposal.

He said the Vancouver program has reduced the number of overdoses in the city and moved drug use out of the public eye.

"The drug is illegal, but the person who's using that drug is suffering

run, he said.

In 2003, it saved the state $1.5 million in health care costs, largely due to decreased emergency room visits.

The California measure faces strong opposition from sheriffs and police chiefs concerned the facilities would encourage drug use.

"This sends entirely the wrong message regarding drug use and likely creates civil liability issues for participating governments and officials," said

said. There is no official guidance from the agency on the facilities.

The "DEA focuses its resources on criminal distributors and not individual users; our focus is on eliminating the suppliers, the distributors, the larger controlled substance providers," Shavers said.

Eggman said she has not reached out to the agency about her proposal. Republican Assemblyman Tom Lackey echoed law enforcement concerns and said Cal-

Patrol. But I just can't support this because there's a number of problems at this stage.

"I don't think we're quite ready for this step," he said.

At least 87 drug consumption facilities existed in 58 cities around the world in 2012, according to researchers Eberhard Schatz of the Correlation Network and Marie Nougier of the International Drug Policy Consortium, citing the most recent data available.

ıent
ɔr farmers

ment that farmers, tribes and conservation groups worked out with state and federal officials in 2010.

That agreement would have also restored tribal lands and given more water rights to farmers and ranchers, but was strongly opposed in Congress, where Republicans oppose dam removal.

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Notice of Public Hearing
City of Brawley
June 7, 2016
2015 Urban Water Management Plan

The City of Brawley will hold a Public Hearing and Council Meeting on Tuesday, June 7, 2016 at 6:00 p.m. The meeting will be held at the City' Council Chamber at 383 Main Street, to consider and receive comments for the City's 2015 Urban Water Management Plan.

The Urban Water Management Plan will be posted on April 7, 2016 on the City's Website, Office of the City Clerk and Public Works Department.

The 2015 Urban Water Management Plan describes the City's water deliveries and uses, water supply sources, efficient water uses, and demand management measures. Additionally, it incorporates the City's plan to achieve a 20 percent reduction in potable water consumption by 2020 in accordance with the Water Conservation Bill of 2009.

The City's 2015 Urban Water Management Plan is available for public review at the City's Public Works Department office at 180 South Western Avenue and on the City's website at www.brawley-ca.gov when completed and adopted.

During the Public Hearing the Council shall consider all comments, if any, to the proposed Urban Water Management Plan. Interested persons are invited to attend the Public Hearing or contact the City's Public Works Department verbally or in writing, prior to the Hearing. All comments or inquiries should be directed to the City.

PUBLISHED: April 6, 2016
May 6, 2016

Alma Benavides, City Clerk

Your News

QUESTIONS? Contact Copy Editor Vicenta Adelle Tamayo at amapilis@ivpressonline.com or 760-337-3447.

HAPPENING TODAY

STeP — 'Money Talk: Taking care of your finances'

WHEN 5 p.m. to 6:30 p.m.
WHERE Camarena Memorial Library, 850 Encinas Ave., Calexico
INFO STeP welcomes teen moms and their children and pregnant teens, ages 20 and under. Today's theme is "Money Talk: Taking care of your finances." Sign up for this series of workshops to help you set up goals for the future, take care of you and your child, learn about parenting and early learning and much more. Call, stop by the library or go to http://calexicolibrary.org/step to sign up. STeP provides snacks, licensed child care and help with transportation at each workshop.

Support group for family/allies of LGBT

WHEN 7 p.m. today and April 27 (every other Wednesday)
WHERE Imperial Valley LGBT Resource Center, 1073 Ross Ave., Suite D, El Centro
INFO This group meets every other Wednesday and is a safe place and open to all and serving those who concerns relate to any aspect of having a loved one who is lesbian, gay, bisexual or transgender. It's a place to share your concerns, fears, experiences and to support one another. For more information call 760-592-4066.

IVKWVA Chapter 102 meeting/ membership information

WHEN 11:30 a.m.
WHERE El Centro Adult Center, 375 S. First St. in El Centro
INFO Discussion will include: update and changes on benefits, medical and other pertinent veteran information. All veterans are welcome. For more information call N.O. Benavidez at 760-352-3929.

Grief Support Group

WHEN 4 p.m. to 5 p.m. today, April 20 and 27
WHERE Center for Family Solutions, Classroom 2, 510 W. Main St., El Centro
INFO Sign up by calling our office at 760-353-6922 or send an email to cfstreatment@womanhaven.org. Childcare will be provided.

Imperial Public Library closed

WHEN Today to June 30
WHERE/INFO Closure is due to construction and electrical work necessary for the expansion. Renewals on items will not be available. Due dates and fines will be adjusted. Downloadable items will still be accessible at http://serra.lib.overdrive.com. The tax assistance program that runs from 11 a.m. to 4 p.m. Mondays to Thursdays will relocate to the west room of the Rainforest building at 420 S. Imperial Ave. in Imperial.

Pediatric-Adult CPR, AD and first aid certification

WHEN 6 p.m. to 10 p.m.
WHERE Medic First/Villa Lara Apartments (Community Room), 2371 Myrtle Road, Imperial.
INFO The class is in Spanish/English. Cost is $65 per person. Family friendly, for teens, seniors, accessible, 18 and over 21 years old. RSVP required. Ideal training for school teachers, PE teachers, childcare providers, school bus drivers, coaches, personal trainers, security guards and others who want to learn life saving skills. This comprehensive program helps meet diverse job requirements for pediatric-adult health and OSHA safety training. EMSA approved training programs space is limited. Early registration is recommended. For more information call 760-455-3882 or visit us at our website www.medicfirstaidcpr.com or Facebook https://www.facebook.com/MedicFirst

Agronomic Crops & Water Conservation Field Day

WHEN 7 a.m. to 12:30 p.m.
WHERE University of California Desert Research & Extension Center, 1004, E. Holton Road, Holtville
INFO Topics to be addressed at this field day include crop nutrition, water conservation, crop production, variety trials and deficit irrigation as well as an update on the California drought, precision farm water management, an update on automated irrigation systems and alfalfa insect pest management. Frank Taylor of Community Safety Consulting Group will demonstrate how drones are being used to spot agricultural crop troubles. Five hours of continuing education units have been approved for certified crop advisers, 1 hour from the California Department of Pesticide Regulation and 1 hour from the AZ Department of Agriculture. For more information contact Andrea Estrada at aiestrada@ucanr.edu or 760-352-9474, or go to http://ceimperial.ucanr.edu

Story Time

WHEN 6 p.m. today, April 20, 27
WHERE Camarena Memorial Library, 850 Encinas Ave. in Calexico
INFO Help your child acquire important pre-literacy skills needed for Kindergarten by bringing him/her to our story time program. Your child will enjoy stories, fingerplays, songs, crafts, exercises and will interact with other children. The program alternates weekly between English and Spanish. For more information contact the library at 760-768-2170 or visit our website at http://calexicolibrary.org

FOR UPCOMING EVENTS
As we strive to improve the method of submitting upcoming events for our online and print sections, we have changed the method of submitting events. Please submit your event at www.ivpressonline.com/calendar

Send photos, caption and contact information to pictures@ivpressonline.com

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Months	Total	Months	Total
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3	$36.00	3	$39.00
1	$12.00	1	$13.00

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6	85.50	114.00
3	42.75	57.00
1	14.25	19.00

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TO CONTACT THE NEWSROOM

News tips/releases
760-337-3453
mrenteria@ivpressonline.com

Letters to the editor 760-335-4641
smalan@ivpressonline.com

Probe probe@ivpressonline.com

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New desert landscaping on Main Street in El Centro. PHOTO COURTESY OF JANET AND JIM LAMPHERE

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PUBLISHED: April 6, 2016
April 13, 2016

Alma Benavides, City Clerk

STORIES FROM THE PAST

50 years ago

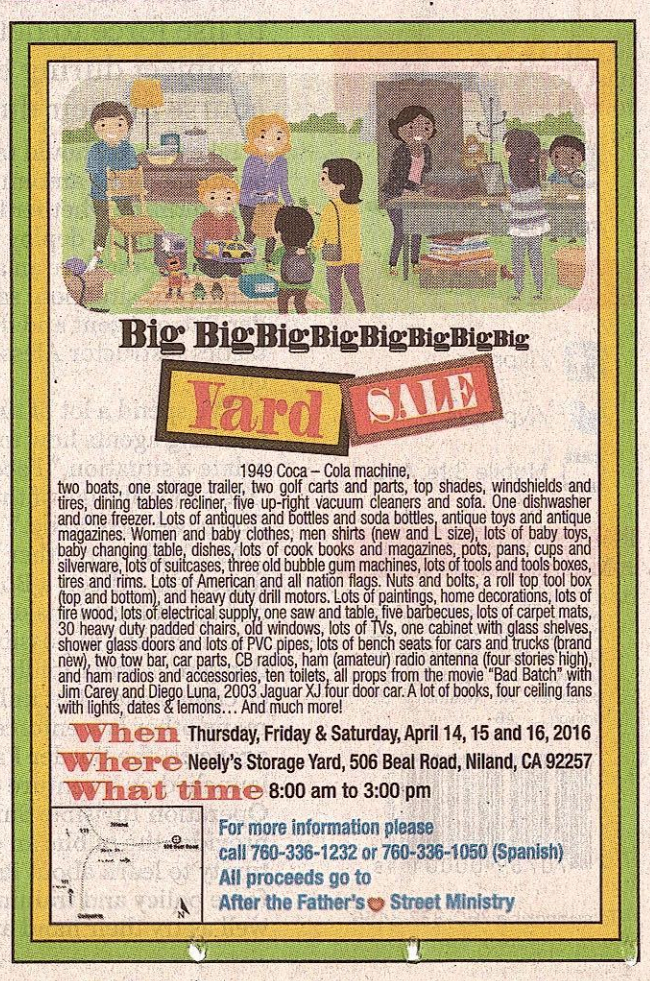
Predicting a multi-million dollar chemical and electrical industry southeast of Salton Sea, three prominent geothermal experts asked the county Planning Commission yesterday for "flexibility" in their zoning of the Red Hill and North-end School areas. Carel Otte, vice president of Earth Energy Inc., wholly owned by Union Oil, said his company had already spent three years and $3 million on exploratory wells there, added, "This is because we have hope of the size of this operation. If we are just talking about getting hot brine up from 5,000 feet down to refine out 100,000 tons of potash, then we are wasting our time."

40 years ago

CALEXICO — The worst traffic jam "in at least 23 years" tied up Mexico-bound automobiles for nearly eight hours Monday.

One source said the line of Valley residents and Easter holiday vacationers waiting to cross the border into Mexicali extended 2 1/2 miles north of the intersection of highways 98 and 111.

Meanwhile, Mexican tourist officials were setting roadblocks south of the Baja California capital city attempting to avert vacationers bound for San Felipe to other recreational areas.

Preliminary reports indicated more than 40,000 tourists had arrived at the small fishing village 125 miles south of here during the weekend.

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