APPENDIX J – WATER SUPPLY ASSESSMENT – ENERGY SOURCE MINERALS, LLC

2021

WATER SUPPLY ASSESSMENT – ES MINERALS

PREPARED FOR IMPERIAL COUNTY PLANNING & DEVELOPMENT SERVICES

BY DUBOSE DESIGN GROUP

APRIL 21, 2021

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ACRONYMS

A-3	Agricultural Zone - 3
AF	Acre-Foot or Acre-Feet
AFY	Acre-Feet per Year
AOP	Annual Operations Plan
APN	Assessor's Parcel Number
CAP	Central Arizona Project
CDCR	California Department of Corrections and Rehabilitation
CDPH	California Department of Public Health
CDWR	California Department of Water Resources
CEQA	California Environmental Quality Act
CRWDA	Colorado River Water Delivery Agreement
CUP	Conditional Use Permit
CVWD	Coachella Valley Water District
CWC	California Water Code
EDP	IID Equitable Distribution Plan
EHS	Environmental Health & Safety
EIS	Environmental Impact Statement
G	Land Zoning Geothermal
HR1	Hudson Ranch 1
ICPDS	Imperial County Planning and Development Services
ICS	Intentionally Created Surplus
IID	Imperial Irrigation District
IOPP	Inadvertent Overrun Payback Policy
ISG	Interim Surplus Guidelines
IRWMP	Integrated Regional Water Management Plan
IWSP	Interim Water Supply Policy
KAF	Thousand Acre Feet

LAFCO	Local Agency Formation Commission
LCR	Lower Colorado Region
LCRWSP	Lower Colorado Water Supply Project
M-2	Land Zoning Industrial-2
MCI	Municipal, commercial, industrial
MGD	Million Gallons per Day
MW	Megawatt
MWD	Metropolitan Water District of Southern California
NAF	Naval Air Facility
PE	Land Zoning Pre Existing
PVID	Palo Verde Irrigation District
Q2	Financial Quarter 2
Q3	Financial Quarter 3
QSA	Quantification Settlement Agreement and Related Agreements
SB	Senate Bill
SDCWA	San Diego County Water Authority
SNWA	Southern Nevada Water Authority
SWRCB	State Water Resource Control Board
TLCFP	Temporary Land Conversion Fallowing Policy
USBR	United States Bureau of Reclamation
USEPA	United States Environmental Protection Agency
WSA	Water Supply Assessment

PURPOSE OF WATER SUPPLY ASSESSMENT

This Water Supply Assessment (WSA) was prepared for the Imperial County Planning & Development Services (Lead Agency) by Dubose Design Group, regarding Energy Source Minerals, LLC (ES Minerals) (the "Applicant"). This study is a requirement of California law, specifically Senate Bill 610 (referred to as SB 610). SB 610 is an act that amended Section 21151.9 of the Public Resources Code, and Sections 10631, 10656, 10910, 10911, 10912, and 10915 of the Water Code. SB 221 is an act that amended Section 11010 of the Business and Professions Code, while amending Section 65867.5 and adding Sections 66455.3 and 66473.7 to the Government Code. SB 610 was approved by the Governor and filed with the Secretary of State on October 9, 2001, and became effective January 1, 2002.[1] SB 610 requires a lead agency, to determine that a project (as defined in CWC Section 10912) subject to California Environmental Quality Act (CEQA), to identify any public water system that may supply water for the project and to request the applicants to prepare a specified water supply assessment. This study has been prepared pursuant to the requirements of CWC Section 10910, as amended by SB 610 (Costa, Chapter 643, Stats. 2001). The purpose of SB 610 is to advance water supply planning efforts in the State of California; therefore, SB 610 requires the Lead Agency, to identify any public water system or water purveyor that may supply water for the project and to prepare the WSA after a consultation. Once the water supply system is identified and water usage is established for construction and operations for the life of the project, the lead agency is then able to coordinate with the local water supplier and make informed land use decisions to help provide California's cities, farms and rural communities with adequate water supplies.

This study has been prepared pursuant to the requirements of CWC Section 10910, as amended by SB 610 (Costa, Chapter 643, Stats. 2001). The purpose of SB 610 is to advance water supply

[1]SB 610 amended Section 21151.9 of the California Public Resources Code, and amended Sections 10631, 10656, 10910, 10911, 10912, and 10915, repealed Section 10913, and added and amended Section 10657 of the Water Code. SB 610 was approved by California Governor Gray Davis and filed with the Secretary of State on October 9, 2001.

planning efforts in the State of California; therefore, SB 610 requires the Lead Agency, to identify any public water system or water purveyor that may supply water for the project and to prepare the WSA after a consultation. Once the water supply system is identified and water usage is established for construction and operations for the life of the project, the lead agency is then able to coordinate with the local water supplier and make informed land use decisions to help provide California's cities, farms and rural communities with adequate water supplies.

Under SB 610, water supply assessments must be furnished to local governments for inclusion in any environmental documentation for certain projects (as defined in California Water Code (CWC) Section 10912 [a]) that are subject to the California Environmental Quality Act (CEQA). Due to increased water demands statewide, this water bill seeks to improve the link between information on water availability and certain land use decisions made by cities and counties. This bill takes a significant step toward managing the demand placed on California's water supply. It provides further regulations and incentives to preserve and protect future water needs. Ultimately, this bill will coordinate local water supply and land use decisions to help provide California's cities, farms, rural communities, and industrial developments with adequate long-term water supplies. The WSA will allow the lead agency to determine whether water supplies will be sufficient to satisfy the demands of the project, in addition to existing and planned future uses.

PROJECT DETERMINATION ACCORDING TO SB 610 - WATER SUPPLY ASSESSMENT

With the introduction of SB 610, any project under the California Environmental Quality Act (CEQA) shall provide a Water Supply Assessment if the project meets the definition of CWC § 10912. Water Code section 10911(c) requires for that the lead agency "determine, based on the entire record, whether projected water supplies will be sufficient to satisfy the demands of the project, in addition to existing and planned future uses." Specifically, Water Code section 10910(c)(3) states that "If the projected water demand associated with the proposed project was not accounted for in the most recently adopted urban water management plan, or the public water system has no urban water management plan, the water supply assessment for the project shall include a discussion with regard to whether the total projected water supplies, determined to be available by the city or county for the project during normal, single dry, and multiple dry water years during a 20 year projection, will meet the projected water demand associated with the proposed project, in addition to the public water system's existing and planned future uses, including agricultural and manufacturing uses."

After review of CWC § 10912a, and Section 10912 (a)(5)(B), it was determined that the ES Minerals ATLiS, commercial lithium hydroxide production plant, is deemed a project as it is considered an industrial water use project use that is considered an industrial plant of 40 acres or more in accordance to CWC § 10912a (5). The proposed project totals 92 acres which exceeds the 40 acre or less allowance.

EXECUTIVE SUMMARY

Imperial Irrigation District (IID) and Imperial County Planning & Development Services (ICPDS) have requested a WSA as part of the environmental review for the proposed ES Mineral Project. This study is intended for use by the ICPDS in its evaluation of water supplies for existing and future land uses. The evaluation examines the following water elements:

- Water availability during a normal year
- Water availability during a single dry, and multiple dry water years
- Water availability during a 30-year projection to meet existing demands, with a 2-year construction window.
- Expected 30-year water demands of the project for operations with an added 2-year window for construction.
- Reasonably foreseeable planned future water demands to be served by the IID

The proposed Project site is located within IID's Imperial Unit and district boundary and as such is eligible to receive water service. IID has adopted an Interim Water Supply Policy (IWSP) for Non-Agricultural Projects, from which water supplies can be contracted to serve new developments within IID's water service area. For applications processed under the IWSP, applicants shall be required to pay a processing fee and, after IID board approval of the corresponding agreement, will be required to pay a reservation fee(s) and annual water supply development fees.

The IWSP sets aside 25,000 acre-feet annually (AFY) of IID's Colorado River water supply to serve new non- agricultural projects. As of March 2021, a balance of 23,800 AFY remain available under the IWSP for new non-agricultural projects ensuring reasonably sufficient supplies for such projects. The proposed Project water demand for construction for a period of 2 years is approximately 56 AFY, representing .025% of the annual unallocated supply set aside for new non-agricultural projects, and the total water demand for operations is approximately 3,400 AFY for 30 years and represents 14 % of the annual unallocated supply set aside for new non-agricultural

projects. Thus, the proposed Project's estimated water demand **would not** affect IID's ability to provide water to other users in IID's water service area.

Table 1: *Project APNs, Canals and Gates and Land Relationship to Project*

IID Gate/ Canal	APN/Acres	Zoning	Purpose of Water Usage
"O" Lateral/Gate 32 "N" Lateral/Gate TBD	020-100-044 65.06 Acres (currently) Expected to be 40.3 (after subdivision map)	M-2_G-PE (Medium Industrial, Geothermal Overlay, Preexisting Allowed/Restricted)	Existing water use and demand for Hudson Ranch 1 will continue at the same level under an existing Water Supply Agreement with IID. Water source will be extended to include "N" Lateral as may be needed to accommodate shared water facilities with ES Minerals.
"O" Lateral/Gate 32 "N" Lateral/Gate TBD	New Parcel (79.91 AC) 25.03 AC (020-100-044) 14.88 AC (020-100-025) 40.00 AC (020-100-046)	M-2_G-PE (Medium Industrial, Geothermal Overlay, Preexisting Allowed/Restricted)	After a proposed parcel map, the water usage will be for mineral extraction at the newly formed subject site including lithium production, processing, landscaping and fire suppression. The newly formed APN will receive water from both the "O" Lateral and the "N" Lateral; the final APN and ES Minerals project site will be approximately 79.91 acres after the proposed parcel map.
Not Applicable	020-100-025 14.88 Acres	M-2-G-PE (Medium Industrial, Geothermal Overlay, Pre-Existing Allowed/Restricted	After proposed parcel map and acquisition of the 14.88 acres, the water usage will be for mineral extraction under the newly formed parcel and this existing APN will cease to exist.
Not Applicable	020-100-046 80 Acres	M-2-G-PE (Medium Industrial, Geothermal Overlay, Pre-Existing Allowed/Restricted	After proposed parcel map, 40 acres will be assigned to the new parcel and the 40 remaining acres will not have any water service under this Project.

Table 2: Project Water Use Summary

Water Use	Expected Years	Total AFY
Construction	2 Years	56 AFY
Total for Water Construction		112 AF
Processing, Daily Plant Operations & Mitigation	30 Years	3,400 AFY
Breakdown		
Operations		3,393 AFY
Landscaping		1 AFY
Fire Suppression		2 AFY
Dust Mitigation		4 AFY
Total Water Usage for Processing Daily Plant Operations & Mitigation		102,000 AFY
Total Water Usage for Project	**32 Years**	**102,112 AF**

Table 3: *Amortized Project Water Summary*

Project Water Use – Life of Project	Years	Total Years Combined*	IWSP (AFY)	% of IWSP per Year**
56 AFY	2 Years	112	23,800 AFY	.025%
3,400 AFY	30 Years	102,000 AF	23,800 AFY	14 %

*(56AF/YEAR x 2 Years)

**(112 AF/ YR/23,800 AF/YR x 100)

*3,400 AF/Year x 30 Years)

**(3,400 AF/ YR/23,800 AF/YR x 100)

PROJECT DESCRIPTION

ES Minerals is proposing to develop a commercial lithium hydroxide production plant on approximately 92 acres of land in Imperial County, California. The commercial lithium hydroxide production plant is known as The ATLiS plant and facilities The ATLiS plant and facilities will be located about 3 miles southwest of the community of Niland near the southwest corner of the existing Hudson Ranch 1 Geothermal Power Plant (HR1) site. (**Figure 1.** Site Regional Location, and

Figure 2. Aerial View of Project Site and Vicinity). The property is zoned for manufacturing (M-2-G-PE), and is located entirely within the existing Salton Sea Geothermal Overlay Zone. The proposed ATLiS plant site and associated plant facilities are proposed to be built on one new parcel consisting of portions of the three current parcels that through the subdivision process are being subdivided and/or combined and are privately owned by Hudson Ranch Power I LLC in an unincorporated area of the County: APNs 020-100-025, 020-100-044, 020-100-046. Currently, the HR1 power plant exists within the northeast corner of the 65.06-acre parcel, APN 020-100-044. The three parcels totaling 92 acres of land will undergo a minor subdivision map application to form the new parcel for the Project (**Figure 3.** Project Layout/Site Plan).

The industrial facility involves a Conditional Use Permit that will allow for the commercial lithium hydroxide production plant. The facility will process geothermal brine from the neighboring Hudson Ranch Power I Geothermal Plant (HR1) to produce lithium hydroxide, as well as zinc and manganese products which would be sold commercially. The Project facilities will be located in the north half of Section 24 in Township 11 South, Range 13 East, San Bernardino Base and Meridian.

All parcels that make up the Project site are zoned medium industrial (M-2) and are located within the geothermal overlay zone (G) and pre-existing allowed/restricted overlay zone (PE). The M-2 zone is to designate areas for wholesale commercial, storage, trucking, assembly type manufacturing, general manufacturing, research and development, medium intensity fabrication and other similar medium intensity processing facilities. Land in the PE overlay zone is also classified in another "base" zone, and is intended to allow an existing base zoned use to continue with its current use, even though through the strict interpretation of the County General Plan and Zoning Ordinances, such use is a pre-existing, non-conforming use. Additionally, the geothermal overlay zone designates the area for geothermal energy extraction and associated activities. The Project is located entirely within the Salton Sea Geothermal Overlay Zone.

The sewage from the Project will be processed by the HR1 sewer treatment plant, hence no further permitting for solid waste is required. Potable water will be provided from the existing HR1 permitted water treatment plant via an agreement between HR1 and the ATLiS Plant. An application to modify the HR1 water treatment plant by using both the existing approved plant and the former Simbol plant will be made to Environmental Health & Safety (EHS) to HR1.

The Project will need to contract with IID to deliver up to 3,400 AFT of untreated water, via the "O" Lateral and "N" Lateral as noted in Table 1. The primary source will be the "O" Lateral, Gate 32 while a new gate is proposed on the "N" Lateral to be used when the "O" Lateral is unable to accommodate the combined demand of the existing and new proposed facilities.

Fire Water and Freshwater Pond

The Project will share with HR1 the fire suppression system, and the freshwater storage containment pond. The fire suppression system will be re-designed to accommodate the overall fire protection obligation to both plants along with the necessary controls. The raw water storage pond currently located on the east side of the HR1 plant will continue to receive canal water from the IID "O" lateral. However, a backup delivery line will also be installed from the "N" lateral located about ¼ mile south of the plant. This redundancy is necessary for two reasons, first when IID does maintenance work on canals they can be out of service for several days and second in the event of a natural interruption such as an earthquake that may render the "O" lateral out of service. The Imperial County Fire Department will be consulted as appropriate to review and approve the proposed fire water and freshwater pond facilities. A 500,000-gallon above-ground water tank will be constructed to serve as the primary water supply for the
joint fire suppression system for the HR1 and ATLiS sites.

Construction Water Supply Source and Requirements

Project construction would begin when all necessary permits are obtained, expected to be Quarter Three (Q3) of 2021. Construction is expected to be complete Quarter Two (Q2) of 2023. All work would occur in one phase, with approximately 90% of work occurring during daylight hours over 5 or 6 days per week over an intermittent 24-month period. It is estimated that up to 50,000 gallons per day of water will be needed during Project construction for fugitive dust control during

Project site grading and construction activities. This water will be purchased from the IID and will be transported to the site via temporary pipeline or via water truck.

Operational Water Supply Source and Requirements

Approximately 90,000 gallons per hour (g/h) or about 3,400 acre-feet per year (AFY) of canal water will be purchased from the IID for project cooling water makeup and additional process water and mitigation. Approximately 112 g/h or about 3 AFY of the canal water to be purchased will be used for potable water purposes, including potable washbasin water, eyewash equipment water, water for showers and toilets in crew change quarters, and sink water in the sample laboratory, this water will be supplied through the joint facility of Hudson Ranch 1 which has access to a potable water system as stated previously through a joint agreement. During the operational years of the project, the project is expected to use 3,400 AFY for the duration of the projects life of 30 years with an additional two year construction window. The water from the "O" Lateral gate 32 is the proposed primary lateral. Due to the fact that this gate is already supplying water to APN 020-100-044, the applicant will have to adhere to IID's procedures for a separate meter. This will all need to be decided upon the direction of IID's water engineering department and regulations and incorporated into a Water Supply Agreement.

The existing H1 facility treats water for potable purposes which will accommodate the proposed ES Minerals Project. Therefore, the proposed Project will only need the water identified under this Water Supply Assessment. The Project will need to contract with IID to deliver up to 3,400 AFY of untreated water, via the IID "O" lateral or "N" lateral (proposed new service line). The Project is anticipated to use approximately 3,400 AFY of water to operate a commercial lithium hydroxide production plant. This WSA does not include an analysis of water supply for domestic potable water use. The water supply analyzed is for processing, landscaping, and fire suppression needs. Site restoration water will be assessed via a Site Abandonment Plan.

Lead Agency Approval

Imperial County Planning Department would be the lead agency for the proposed Project. The following permits would be required from the lead agency:

- Imperial County Planning Department – Minor Subdivision (APN 020-100-044, -046, -025)
- Imperial County Planning Department – Conditional Use Permit
- Imperial County Planning Department – Development Agreement (if required)
- Imperial County Building Department – Building and Grading Permits
- Imperial County Public Works Department – Encroachment Permit(s)

Potable/domestic water will be provided from the existing HR1 permitted water treatment plant via an agreement between HR1 and the ATLiS Plant. An application to modify the HR1 water treatment plant by using both the existing approved plant and the former Simbol plant will be made to Environmental Health & Safety (EHS) to HR1. The project will only be seeking raw water from the indicated canals for construction and operations.

Figure 1: Project Site Regional Location

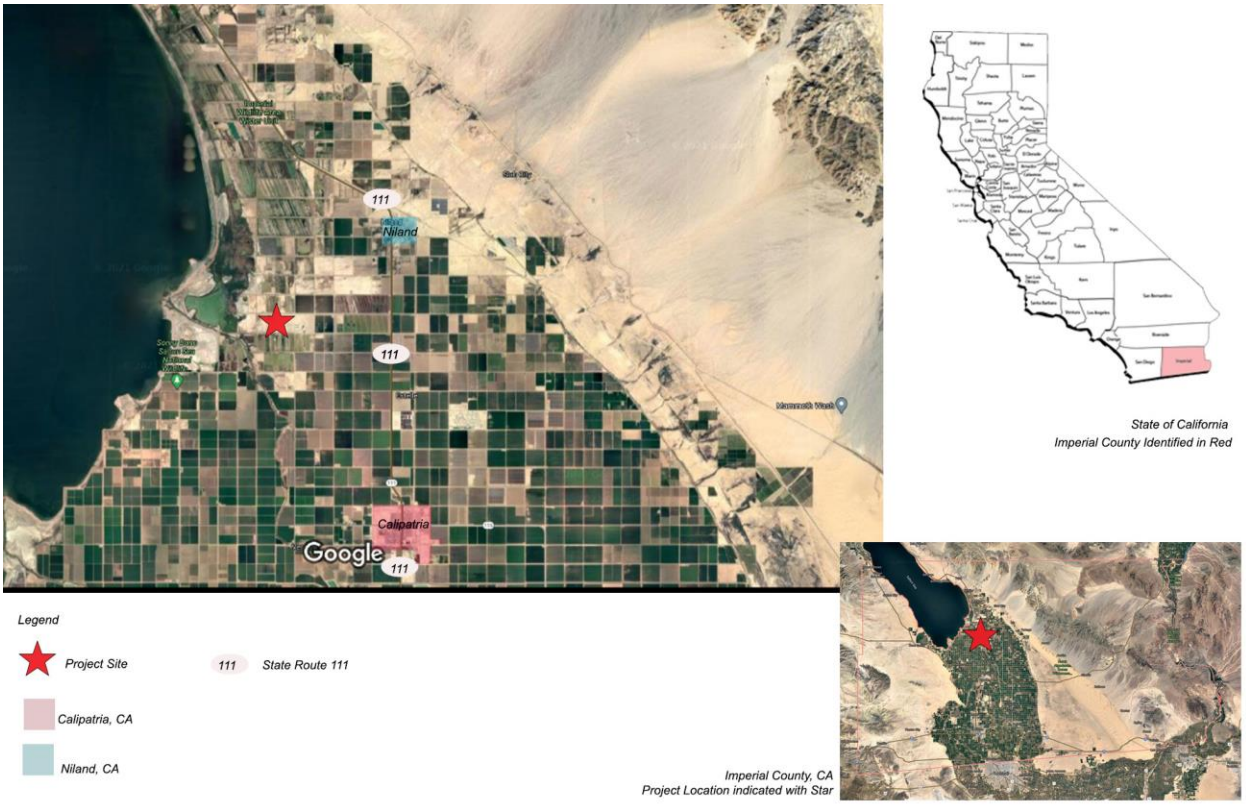


Figure 2: Aerial Map of Project Vicinity

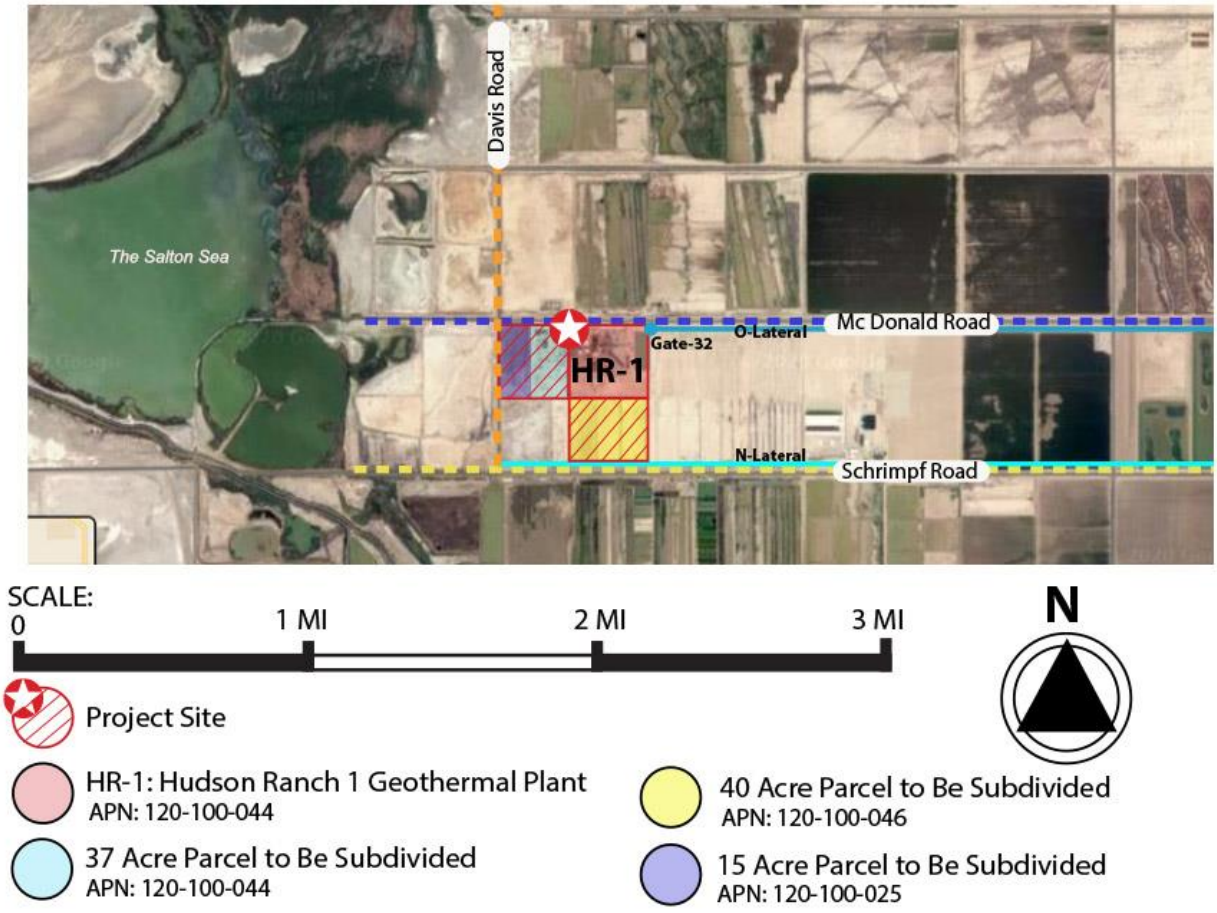
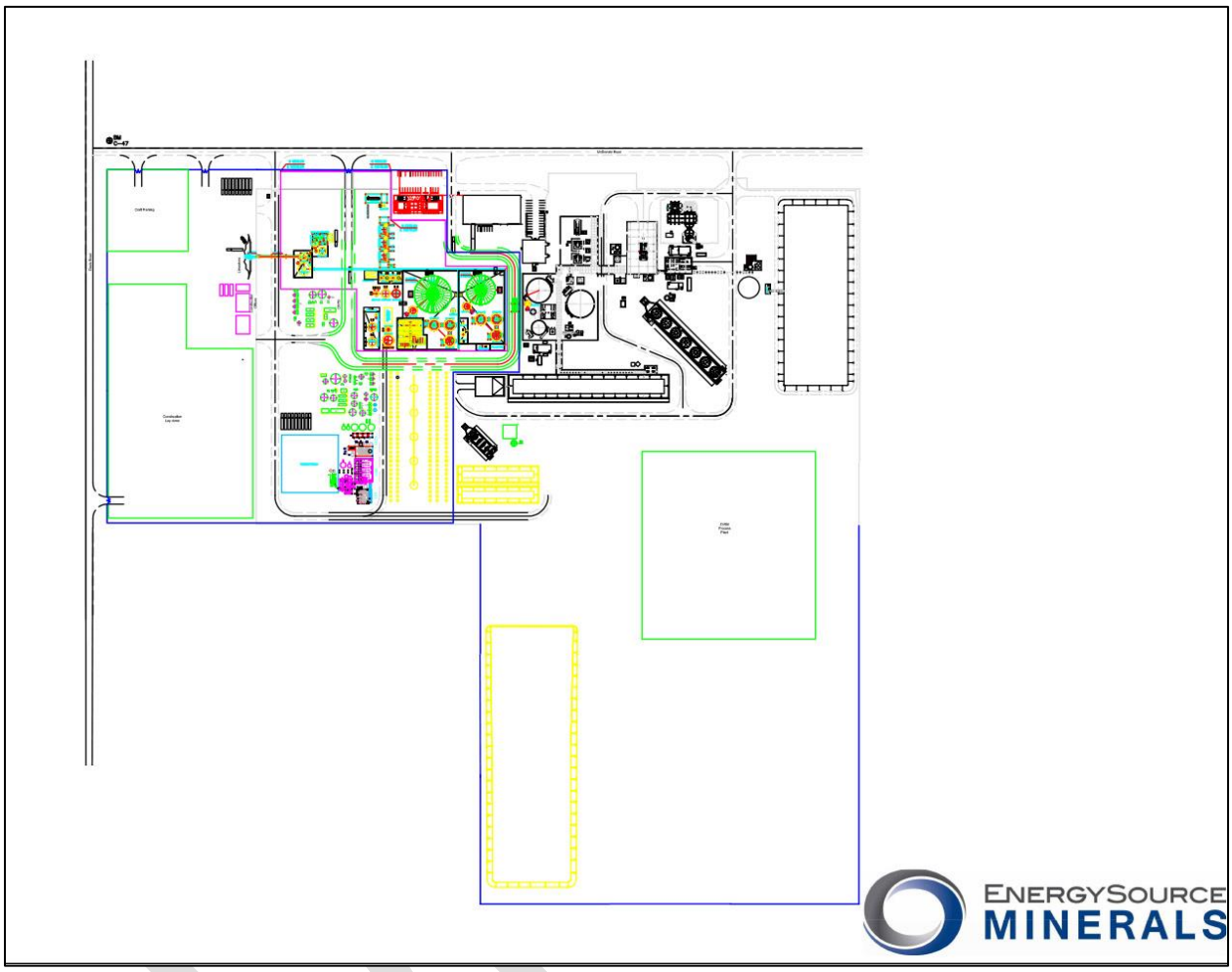


Figure 3: Project Layout/ Site Plan



DESCRIPTION OF IID SERVICE AREA

The proposed Project site is located in Imperial County in the southeastern corner of California. The County is comprised of approximately 4,597 square miles or 2,942,080 acres.[2] Imperial County is bordered by San Diego County to the west, Riverside County to the north, the Colorado River/Arizona boundary to the east, and 84 miles of International Boundary with the Republic of Mexico to the south. Approximately fifty percent of Imperial County is undeveloped land under federal ownership and jurisdiction. The Salton Sea accounts for approximately 11 percent of Imperial County's surface area. In 2020, fifteen percent (15%) of the area was in irrigated agriculture (463,948 acres), including 14,676 acres of the Yuma Project, some 35 sections or 5,600 acres served by Palo Verde Irrigation District (PVID), and 443,672 acres served by IID.[3], [4]

The area served by IID is located in the Imperial Valley, which is generally contiguous with IID's Imperial Unit, lies south of the Salton Sea, north of the U.S./Mexico International Border, and generally in the 658,942 acre area between IID's Westside Main and East Highline Canals.[5] In 2020, IID delivered untreated water to 443,677 net irrigated acres, predominantly in the Imperial Valley, along with small areas of East and West Mesa land.

The developed area consists of seven incorporated cities (Brawley, Calexico, Calipatria, El Centro, Holtville, Imperial and Westmorland), three unincorporated communities (Heber, Niland, Seeley), and three institutions (Naval Air Facility [NAF] El Centro, Calipatria CDCR, and Centinela CDCR) and supporting facilities. **Figure 4** provides a map of the IID Imperial Unit boundary, as well as cities, communities, and main canals.

[2] *Imperial County General Plan*, Land Use Element 2008 Update

[3] *USBR website:* Yuma Project. *7 June 2017, PVID website:* About Us, *Acreage Map. 7 June 2017.*

[4] Palo Verde Irrigation District Acreage Map <http://www.pvid.org/pviddocs/acreage_2012.pdf> 7 June 2013

[5] *IID Annual Inventory of Areas Receiving Water Years 2017, 2016, 2015*

Climate Factors

Imperial Valley, located in the Northern Sonoran Desert, which has a subtropical desert climate is characterized by hot, dry summers and mild winters. Clear and sunny conditions typically prevail, and frost is rare. The region receives 85 to 90 percent of possible sunshine each year, the highest in the United States. Winter temperatures are mild rarely dropping below 32°F, but summer temperatures are very hot, with more than 100 days over 100°F each year. The remainder of the year has a relatively mild climate with temperatures averaging in the mid-70s.

The 100-year average climate characteristics are provided in Table 4. Rainfall contributes around 50,000 AF of effective agricultural water per inch of rain. Most rainfall occurs from November through March; however, summer storms can be significant in some years. Annual areawide rainfall is shown in Table 5. The thirty-year, 1990-2020, average annual air temperature was 73.6°F, and average annual rainfall was 2.65 inches, Table 5 and Table 3. This record shows that while average annual rainfall has fluctuated, the 10-year average temperatures have slightly increased over the 30-year averages.

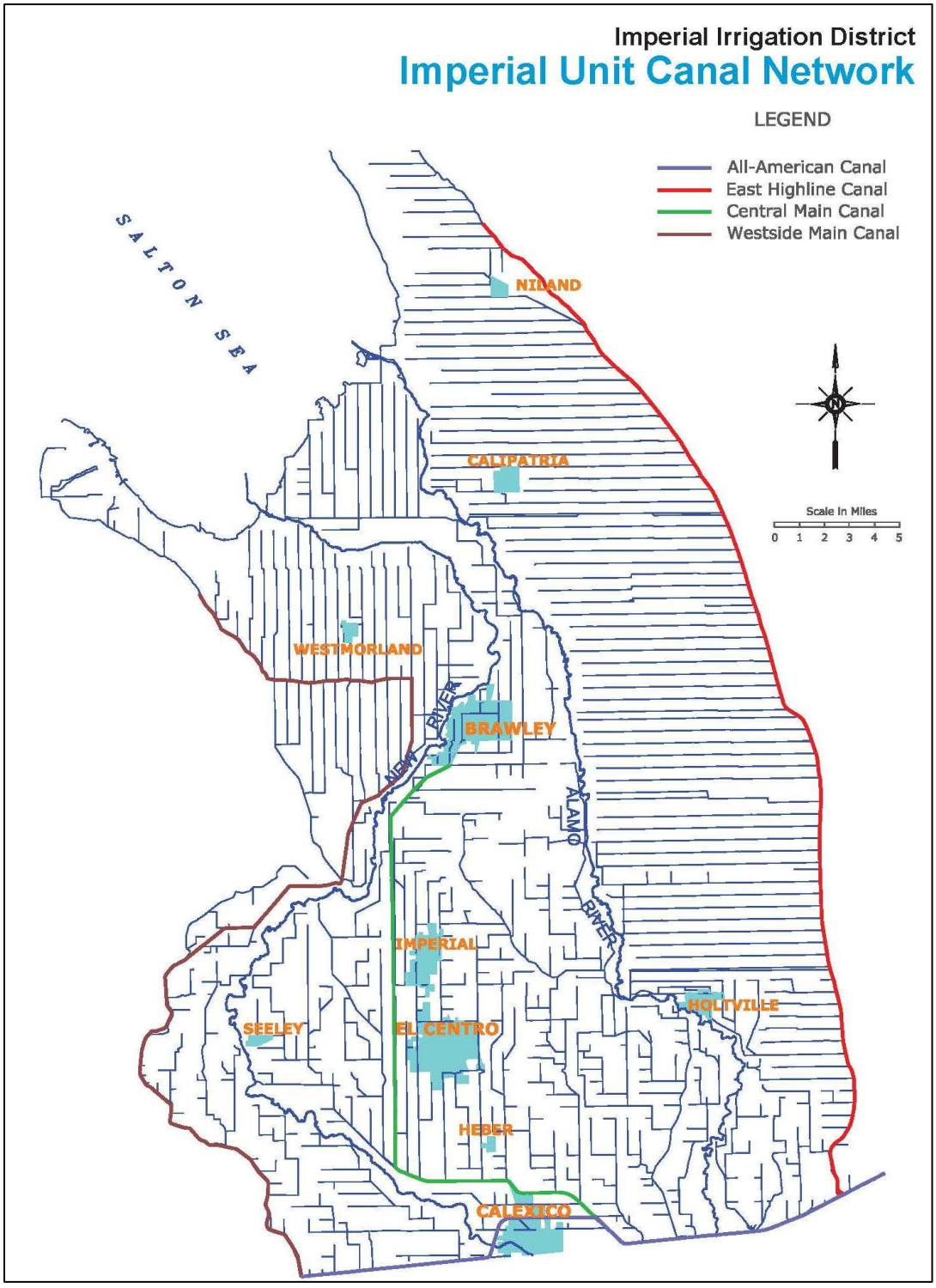


Figure 4 IID Imperial Unit Boundary and Canal Network

Table 4 Climate Characteristics, Imperial, CA 100-Year Record, 1920-2019

Climate Characteristic	Annual Value
Average Precipitation (100-year record, 1920-2019)	2.59 inches (In)
Minimum Temperature, Jan 1937	16 °F
Maximum Temperature, July 1995	121 °F
Average Minimum Temperature, 1920-2019	48.2 °F
Average Maximum Temperature, 1920-2019	98.2 °F
Average Temperature, 1920-2019	72.9 °F

Source: IID Imperial Weather Station Record

Table 5: IID Areawide Annual Precipitation (In), (1990-2019)

1990	1991	1992	1993	1994	1995	1996
1.646	3.347	4.939	2.784	1.775	1.251	0.685
1997	1998	1999	2000	2001	2002	2003
1.328	2.604	1.399	0.612	0.516	0.266	2.402
2004	2005	2006	2007	2008	2009	2010
4.116	4.140	0.410	1.331	1.301	0.619	3.907
2011	2012	2013	2014	2015	2016	2017
2.261	2.752	2.772	1.103	2.000	1.867	2.183
2018	2019					
1.305	3.017					

Source: Computation based on polygon average of CIMIS as station came online in the WIS. [6]

Notable from Table 5 (above) and Table 6 (below) is that while average annual rainfall measured at IID Headquarters in Imperial, CA, has been decreasing, monthly average temperatures are remarkably consistent.

[6] From 1/1/1990-3/23/2004, 3 CIMIS stations: Seeley, Calipatria/Mulberry, Meloland; 3/24/2004-7/5/2009, 4 CIMIS stations (added Westmorland N.); 7/6/2009-12/1/2009, 3 CIMIS stations: Westmorland N. offline; 12/2/2009-2/31/2009, 4 CIMIS stations, Westmorland N. back online; 1/1/2010-9/20/2010.

Table 6: Monthly Mean Temperature (°F) – Imperial, CA 10-Year, 30-Year & 100-Year (2010-2019, 1990-2019, 1920-2019)

	Jan			Feb			Mar			Apr		
	Max	Min	Avg	Max	Min	Avg	Max	Min	Avg	Max	Min	Avg
10-year	82	32	56	85	35	60	94	41	67	99	47	72
30-year	81	33	57	84	37	60	92	41	66	99	47	71
100-year	80	31	55	84	35	59	91	40	64	98	46	71
	May			**Jun**			**Jul**			**Aug**		
	Max	Min	Avg	Max	Min	Avg	Max	Min	Avg	Max	Min	Avg
10-year	105	52	76	115	61	87	114	70	92	114	70	92
30-year	105	54	78	113	60	86	114	68	92	113	70	92
100-year	105	52	78	112	59	86	114	68	92	113	68	91
	Sep			**Oct**			**Nov**			**Dec**		
	Max	Min	Avg	Max	Min	Avg	Max	Min	Avg	Max	Min	Avg
10-year	111	61	87	100	51	75	91	38	64	81	31	55
30-year	110	62	87	101	50	76	90	39	64	79	32	55
100-year	110	60	86	101	49	75	90	38	63	80	32	56

Table 7 Monthly Mean Rainfall (In) – Imperial, CA 10-Year, 30-Year & 100-Year (2010-2019, 1990-2019, 1920-2019)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual
10-year	0.54	0.28	0.15	0.04	0.08	0.01	0.24	0.28	0.28	0.14	0.26	0.48	2.77
30-year	0.49	0.41	0.26	0.07	0.06	0.00	0.14	0.22	0.27	0.16	0.22	0.40	2.65
100-year	0.40	0.39	0.24	0.10	0.03	0.00	0.12	0.34	0.38	0.25	0.21	0.51	2.82

Source: IID WIS: CIMIS stations polygon calculation (Data provided by IID staff).

Imperial Valley depends on the Colorado River for its water, which IID transports, untreated, to delivery gates for agricultural, municipal, industrial (including geothermal and solar energy), environmental (managed marsh), recreational (lakes), and other non-agricultural uses. IID supplies the cities, communities, institutions and Golden State Water (which includes all or portions Calipatria, Niland, and some adjacent Imperial County territory) with untreated water that they treat to meet state and federal drinking water guidelines before distribution to their customers. Industries outside the municipal areas treat the water to required standards of their industry. To comply with U.S. Environmental Protection Agency (USEPA) requirements and avoid termination of canal water service, residents in the IID water 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 IID Water Department tracks nearly 4,000 raw water service accounts required by the California

Department of Public Health (CDPH) to have alternate state approved drinking water service. IID maintains a small-acreage pipe and drinking water database and provides an annual compliance update to CDPH.

IMPERIAL VALLEY HISTORIC AND FUTURE LAND AND WATER USES

Agricultural development in the Imperial Valley began at the turn of the twentieth century. In 2019, gross agricultural production for Imperial County was valued at $2,015,843,000 of which approximately $1,693,308,120 was produced in the IID water service area.[10] While the agriculture-based economy is expected to continue, land use is projected to change somewhat over the years as industrial and/or alternative energy development and urbanization occur in rural areas and in areas adjacent to existing urban centers, respectively. ES Mineral's ATLiS commercial lithium project would benefit the Imperial Valley by way of supporting the goals of diversification of a growing renewable energy economy and supplying the world with a supply chain of lithium.

Imperial Valley's economy is gradually diversifying. Agriculture will likely continue to be the primary industry within the valley; however, two principal factors anticipated to reduce crop acreage are renewable energy (geothermal and solar) and urban development. Over the next twenty years, urbanization is expected to slightly decrease agriculture land use to provide space for an increase in residential, commercial and industrial uses. The transition from agricultural land use typically results in a net decrease in water demand for municipal, commercial, and solar energy development; and a net increase in water demand for geothermal energy development Local energy resources include geothermal, wind, biomass and solar. The County General Plan provides for development of energy production centers or energy parks within Imperial County. Alternative energy facilities will help California meet its statutory and regulatory goals for increasing renewable power generation and use and decrease water demands in Imperial County.

[10] https://agcom.imperialcounty.org/wp-content/uploads/2020/12/2019-Crop-Report.pdf

The IID Board has adopted the following policies and programs to address how to accommodate water demands under the terms of the QSA/ Transfers Agreements and minimize potential negative impacts on agricultural water uses:

Imperial Integrated Regional Water Management Plan: adopted by the board on December 18, 2012, and by the County, the City of Imperial, to meet the basic requirement of California Department of Water Resources (CDWR) for an IRWM plan. In all, 14 local agencies adopted the 2012 Imperial IRWMP.

Interim Water Supply Policy for Non-Agricultural Projects: adopted by the board on September 29, 2009, to ensure sufficient water will be available for new development, in particular, anticipated renewable energy projects until the board selects and implements capital development projects such as those considered in the Imperial IRWMP.

Temporary Land Conversion Fallowing Policy: adopted by the board on May 8, 2012, and revised on March 29, 2016, to provide a framework for a temporary, long-term fallowing program to work in concert with the IWSP and IID's coordinated land use/water supply strategy.

Equitable Distribution Plan: adopted by the board on October 28, 2013, to provide a mechanism for IID to administer apportionment of the district's quantified annual supply of Colorado River water; IID board approved a resolution repealing the Equitable Distribution Plan (EDP)on February 6, 2018.

In addition, water users within the IID service area are subject to the statewide requirement of reasonable and beneficial use of water under the California Constitution, Article X, section 2.

IMPERIAL INTEGRATED REGIONAL WATER MANAGEMENT PLAN (OCTOBER 2012)

The Imperial Integrated Regional Water Management Plan (IRWMP) serves as the governing document for regional water planning to meet present and future water resource needs and demands by addressing such issues as additional water supply options, demand management and determination and prioritization of uses and classes of service provided. In November 2012, the Imperial County Board of Supervisors approved the Imperial IRWMP, and the City of Imperial City Council and the IID Board of Directors approved it in December 2012. Approval by these three (3) stakeholders meets the basic requirement of California Department of Water Resources (CDWR) for an IRWMP. Through the IRWMP process, IID presented to the region stakeholders options in the event long-term water supply augmentation is needed, such as water storage and banking, recycling of municipal wastewater, and desalination of brackish water[10]. As discussed herein, long term water supply augmentation is not anticipated to be necessary to meet proposed Project demands.

Chapter 5 of the 2012 Imperial IRWMP addresses water supplies (Colorado River and groundwater), demand, baseline and forecasted through 2050; and IID water budget. Chapter 12 addresses projects, programs and policies, and funding alternatives. Chapter 12 of the IRMWP lists, and Appendix N details, a set of capital projects that IID might pursue, including the amount of water that might result (AFY) and cost ($/AF) if necessary. These also highlight potential capital improvement projects that could be implemented in the future.

Imperial Valley historic 2015 and forecasted future for 2020 to 2055 non-agricultural water demand, are provided in Table 8 in five-year increments. Total water demand for non-agricultural uses is projected to be 198.4 KAF in the year 2055. This is a forecasted increase in the use of non-agricultural water from 107.4 KAF for the period of 2015 to 2055. These values were modified from Chapter 5 of the Imperial IRWMP to reflect updated conditions from the IID Provisional Water

[10] October 2012 Imperial Integrated Regional Water Management Plan, Chapter 12.

Balance for calendar year 2015. Due to the recession in 2009 and other factors, non-agricultural growth projections have lessened since the 2012 Imperial IRWMP. Projections in Table 8 have been adjusted (reduced by 3%) to reflect IID 2015 delivery data.

Table 8: Non-Agricultural Water Demand within IID Water Service Area, 2015-2055 (KAFY)

	2015	2020	2025	2030	2035	2040	2045	2050	2055
Municipal	30.0	33.9	36.8	39.8	41.5	46.3	51.7	57.8	61.9
Industrial	26.4	33.1	39.8	46.5	53.2	59.9	66.6	73.3	80.0
Other	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5
Feedlots/Dairies	17.8	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0
Envr Resources	8.3	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0
Recreation	7.4	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0
Service Pipes	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0
Total Non Ag	**107.4**	**123.5**	**133.3**	**142.8**	**151.2**	**162.7**	**174.8**	**187.6**	**198.4**

Notes: 2015 non-agricultural water demands are from IID 2015 Provisional Water Balance rerun 03/28/2019 2020-2055 demands are modified from 2012 Imperial IRWMP Chapter 5, Table 5-22 p 5-50 based on IID 2015 Provisional Water Balance. Industrial Demand includes geothermal, but not solar, energy production.

Agricultural evapotranspiration (ET) demand of approximately 1,476.4 KAF in 2015, decreased in 2020 to around 1,494.9 KAF. The termination of fallowing programs provided 103.5 KAF of water for Salton Sea mitigation in 2017. Forecasted agricultural ET remains constant, as reductions in water use are to come from efficiency conservation not reduction in agricultural production. Market forces and other factors may impact forecasted future water demand. Table 9 provides the 2015 historic and 2020-2055 forecasted agricultural consumptive use and delivery demand within the IID water service area. When accounting for agriculture ET, tailwater and tilewater, total agricultural consumptive use (CU) demand ranges from 2,157.9 KAF in 2015 to 2,209.5 KAF in 2055. Forecasted total agricultural delivery demand is around 1 KAFY higher than the CU demand, ranging from 2,158.9 KAF in 2015 to 2,210.5 KAF in 2055.

Table 9: Historic and forecasted Agricultural Water Consumptive Use and Delivery Demand within IID Water Service Area, 2015-2055 (KAFY)

	2015	2020	2025	2030	2035	2040	2045	2050	2055
Ag ET from Delivered & Stored Soil Water	1,475.4	1,567.5	1,567.5	1,567.5	1,567.5	1,567.5	1,567.5	1,567.5	1,567.5
Ag Tailwater to Salton Sea	282.9	318.0	268.0	218.0	218.0	218.0	218.0	218.0	218.0
Ag Tilewater to Salton Sea	398.6	423.0	423.0	423.0	423.0	423.0	423.0	423.0	423.0
Total Ag CU Demand	**2,157.9**	**2,308.5**	**2,258.5**	**2,208.5**	**2,208.5**	**2,208.5**	**2,208.5**	**2,208.5**	**2,208.5**
Subsurface Flow to Salton Sea	*1.0*	*1.0*	*1.0*	*1.0*	*1.0*	*1.0*	*1.0*	*1.0*	*1.0*
Total Ag Delivery Demand	**2,158.9**	**2,309.5**	**2,259.5**	**2,209.5**	**2,209.5**	**2,209.5**	**2,209.5**	**2,209.5**	**2,209.5**

Notes: 2015 record from IID 2015 Provisional Water Balance rerun 06/28/2019; 2020-2055 forecasts from spreadsheet used to develop Figure 19, et seq. in Imperial IRWMP Chapter 5 (Data provided by IID staff).

In addition to agricultural and non-agricultural water demands, system operational demands must be included to account for operational discharge, main and lateral canal seepage; and for All American Canal (AAC) seepage, river evaporation and phreatophyte ET from Imperial Dam to IID's measurement site at AAC Mesa Lateral 5. These system operation demands are shown in Table 10. IID measures system operational uses and at All-American Canal Station 2900 just upstream of Mesa Lateral 5 Heading. Total system operational use for 2019 was 257.9 KAF, including 10 KAF of LCWSP input, 39.8 KAF of seepage interception input, and 30.9 KAF of unaccounted canal water input.

Table 10 IID System Operations Consumptive Use within IID Water Service Area and from AAC at Mesa Lateral 5 to Imperial Dam, (KAF), 2019

Delivery System Evaporation	24.6
Canal Seepage	91.7
Canal Spill	13.1
Lateral Spill	118.1
Seepage Interception	-39.8
Unaccounted Canal Water	30.9
Total System Operational Use, In valley	**238.6**
Imperial Dam to AAC @ Mesa Lat 5	29.2
LCWSP	-10
Total System Operational Use in 2019	**257.8**
Source: 2019 Water Balance rerun 04/22/2020	

IID INTERIM WATER SUPPLY POLICY FOR NON-AGRICULTURAL PROJECTS (SEPTEMBER 2009)

The IID IWSP provides a mechanism to address water supply requests for projects being developed within the IID service area. The IWSP designates up to 25,000 AFY of IID's annual Colorado River water supply for new non-agricultural projects, provides a mechanism and process to develop a water supply agreement for any appropriately permitted project, and establishes a framework and set of fees to ensure the supplies used to meet new demands do not adversely affect existing users by funding water conservation or augmentation projects as needed. [10]

Depending on the nature, complexity and water demands of the proposed project, new projects may be charged a one-time Reservation Fee and an annual Water Supply Development Fee for the contracted water volume used solely to assist in funding new water supply projects. The applicability of the fee to certain projects will be determined by IID on a case-by-case basis, depending on the proportion of types of land uses and water demand proposed for a project. The 2020 fee schedule is shown in Table 11.

Table 11 Interim Water Supply Policy 2020 Annual Non-Agricultural Water Supply Development Fee Schedule

Annual Demand (AF)	Reservation Fee ($/AF)*	Development Fee ($/AF)*
0-500	$74.48	$297.92
501-1000	$104.87	$419.47
1001-2500	$131.68	$526.72
2501-5000	$162.66	$650.65

Adjusted annually in accordance with the Consumer Price Index (CPI).

IID customers with new projects receiving water under the IWSP will be charged the appropriate water rate based on measured deliveries, see IID Water Rate Schedules. As of March 2021, IID has issued one Water Supply Agreement for 1,200 AFY, leaving a balance of 23,800 AFY of supply available for contracting under the IWSP.

[10] *IID website: Municipal, Industrial and Commercial Customers.*

IID Temporary Land Conversion Fallowing Policy (May 2012)

Imperial County planning officials determined that renewable energy facilities were consistent with the county's agricultural zoning designation and began issuing CUPs for these projects with ten- to twenty-year terms. These longer-term, but temporary, land use designations were not conducive to a coordinated land use/water supply policy as envisioned in the Imperial IRWMP, because temporary water supply assignments during a conditional use permit (CUP) term were not sufficient to meet the water supply verification requirements for new project approvals. Agricultural landowners also sought long-term assurances from IID that, at project termination, irrigation service would be available for them to resume their farming operations.

Based on these conditions, IID determined it had to develop a water supply policy that conformed to the local land use decision-making in order to facilitate new development and economic diversity in Imperial County which has resulted in the IID Temporary Land Conversion Fallowing Policy (TLCFP). .[10] IID concluded that certain lower water use projects could still provide benefits to local water users. The resulting benefits; however, may not be to the same categories of use (e.g., MCI) but to the district as a whole.

At the general manager's direction, staff developed a framework for a fallowing program that could be used to supplement the IWSP and meet the multiple policy objectives envisioned for the coordinated land use/water supply strategy. Certain private projects that, if implemented, will temporarily remove land from agricultural production within the district's water service area include renewable solar energy and other non-agricultural projects. Such projects may need a short-term water supply for construction and decommissioning activities and longer-term water service for facility operation and maintenance or for treating to potable water standards. Conserved water will be credited to the extent that water use for the project is less than historic water use for the project site's footprint as determined by the ten year water use history.[11]

[10] *IID website: Temporary Land Conversion Fallowing Policy (TLCFP), and The TLCFP are the sources of the text for this section.*

[11] For details of how water conservation yield attributable to land removed from agricultural production and temporarily fallowed is computed, see TLCFP for Water Conservation Yield.

Water demands for certain non-agricultural projects are typically less than that required for agricultural production; this reduced demand allows water to be made available for other users under IID's annual consumptive use cap. This allows the district to avail itself of the ability during the term of the QSA/Transfer Agreements under CWC Section 1013 to create conserved water through projects such as temporary land fallowing conservation measures. This conserved water can then be used to satisfy the district's conserved water transfer obligation and for environmental mitigation purposes.

Under the terms of the legislation adopted to facilitate the QSA/Transfer Agreements and enacted in CWC Section 1013, the TLCFP was adopted by the IID board on May 8, 2012 and revised on March 29, 2016 to update the fee schedule for 2016. This policy provides a framework for a temporary, long-term fallowing program to work in concert with the IWSP. While conserved water generated from the TLCFP is limited by law for use for water transfer or environmental purposes, by satisfying multiple district objectives the TLCFP serves to reduce efficiency conservation and water use reduction demands on IID water users, thus providing district wide benefits.

IMPERIAL IRRIGATION DISTRICT'S WATER RIGHTS

The laws and regulations that influence IID's water supply are noted in this section. The Law of the River (as described below), along with the 2003 Quantification Settlement Agreement and Related Agreements serve as the laws, regulations and agreements that primarily influence the findings of this WSA. These agreements grant California the most senior water rights along the Colorado River and IID specify that IID has access to 3.1 MAF per year. These two components will influence future decisions in terms of water supply during periods of shortages.

CALIFORNIA LAW

IID's has a longstanding right to divert Colorado River water, and IID holds legal titles to all of its water and water rights in trust for landowners within the district (CWC §20529 and §22437; *Bryant v. Yellen*, 447 U.S. 352, 371 (1980), fn.23.). Beginning in 1885, a number of individuals, as well as the California Development Company, made a series of appropriations of Colorado River water under California law for use in the Imperial Valley. The rights to these appropriations were among the properties acquired by IID from the California Development Company.

LAW OF THE RIVER

Colorado River water rights are governed by numerous compacts, state and federal laws, court decisions and decrees, contracts, and regulatory guidelines collectively known as the "Law of the River." Together, these documents form the basis for allocation of the water, regulation of land use, and management of the Colorado River water supply among the seven basin states and Mexico.

Of all regulatory literature that governs Colorado River water rights, the following are the specifics that impact IID:

- Colorado River Compact (1922)
- Boulder Canyon Project Act (1928)
- California Seven-Party Agreement (1931)
- Arizona v. California US Supreme Court Decision (1964, 1979)
- Colorado River Basin Project Act (1968)
- Quantification Settlement Agreement and Related Agreements (2003)
- 2003 Colorado River Water Delivery Agreement: Federal QSA for purposes of Section 5(b) Interim Surplus Guidelines (CRWDA)
- 1970 Criteria for Coordinated Long-Range Operation of Colorado River Reservoirs
- Annual Operating Plan (AOP) for Colorado River Reservoirs
- 2007 Colorado River Interim Guidelines for Lower Basin Shortages and Coordinated Operations for Lakes Powell and Mead (2007 Interim Guidelines)

COLORADO RIVER COMPACT (1922)

With authorization of their legislatures and urging of the federal government, representatives from the seven Colorado River basin states began negotiations regarding distribution of water from the Colorado River in 1921. In November 1922, an interstate agreement called the "Colorado River

Compact" was signed by the representatives giving the Lower Basin perpetual rights to annual apportionments of 7.5 million acre-feet (MAF) of Colorado River water (75 MAF over ten years). The Upper Basin was to receive the remainder, which based on the available hydrological record was also expected to be 7.5 MAF annually, with enough left over to provide 1.5 MAF annually to Mexico.

BOULDER CANYON PROJECT ACT (1928)

Provisions in the 1928 Boulder Canyon Project Act made the compact effective and authorized construction of Hoover Dam and the All-American Canal, and served as the United States' consent to accept the Compact. Through a Presidential Proclamation on June 25, 1929, 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 unportioned by the Compact. A lawsuit was filed by the State of Arizona after its refusal to sign. Through the implementation of its 1929 Limitation Act, California abided by this federal mandate. The Boulder Canyon Act authorized the Secretary of the Interior (Secretary) to "contract for the storage of water… and for the delivery thereof… for irrigation and domestic uses," and additionally defined the lower basin's 7.5 MAF apportionment split, with an annual allocation 0.3 MAF to Nevada, 2.8 MAF to Arizona, and 4.4 MAF to California. Even though the three states never formally settled or agreed to these terms, a 1964 Supreme Court decision (*Arizona v. California*, 373 U.S. 546) declared the three states' consent to be insignificant since the Boulder Canyon Project Act was authorized by the Secretary.

CALIFORNIA SEVEN-PARTY-AGREEMENT (1931)

Following implementation of the Boulder Canyon Project Act, the Secretary requested that California make recommendations regarding distribution of its apportionment 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. The first four (4) priority allocations account for California's annual apportionment of 4.4 MAF, with agricultural entities using 3.85 MAF of that total. Additional priorities are defined for years in which the Secretary declares that excess waters are available.

ARIZONA V. CALIFORNIA U.S. SUPREME COURT DECISION (1964, 1979)

The 1964 Supreme Court decision settled a 25-year disagreement between Arizona and California that stemmed from Arizona's desire to build the Central Arizona Project to enable use of its full apportionment. California's argument was that as Arizona used water from the Gila River, which is a Colorado River tributary, it was using a portion of its annual Colorado River apportionment. An additional argument from California was that it had developed a historical use of some of Arizona's apportionment, which, under the doctrine of prior appropriation, precluded Arizona from developing the project. California's arguments were rejected by the U.S. Supreme Court. Under direction of the Supreme Court, the Secretary was restricted from delivering water outside of the framework of apportionments defined by law. Preparation of annual reports documenting consumptive use of water in the three lower basin states was also mandated by the Supreme Court. In 1979, present perfected water rights (PPRs) referred to in the Colorado River Compact and in the Boulder Canyon Project Act were addressed by the Supreme Court in the form of a Supplemental Decree.

In March of 2006, a Consolidated Decree was issued by the Supreme Court to provide a single reference to the conditions of the original 1964 decrees and several additional decrees in 1966, 1979, 1984 and 2000 that stemmed from the original ruling. The Consolidated Decree also reflects the settlements of the federal reserved water rights claim for the Fort Yuma Indian Reservation.

COLORADO RIVER BASIN PROJECT ACT (1968)

In 1968, various water development projects in both the upper and lower basins, including the Central Arizona Project (CAP) were authorized by Congress. Under the Colorado River Basin Project Act, priority was given to California's apportionment over (before) the CAP water supply in times of shortage. Also under the act, the Secretary was directed to prepare long-range criteria for the Colorado River reservoir system in consultation with the Colorado River Basin States.

QUANTIFICATION SETTLEMENT AGREEMENT AND RELATED AGREEMENTS (2003)

With completion of a large portion of the CAP infrastructure in 1994, creation of the Arizona Water Banking Authority in 1995, and the growth of Las Vegas in the 1990s, California encountered increasing pressure to live within its rights under the Law of the River. After years of negotiating among Colorado River Compact States and affected California water delivery agencies, a Quantification Settlement Agreement and Related Agreements and documents were signed on October 10, 2003, by the Secretary of Interior, IID, Coachella Valley Water District (CVWD), Metropolitan Water District of Southern California (MWD), San Diego County Water Authority (SDCWA), and other affected parties.

The Quantification Settlement Agreement and Related Agreements (QSA/Transfer Agreements) are a set of interrelated contracts that resolve certain disputes among the United States, the State of California, IID, MWD, CVWD and SDCWA, for a period of 35 to 75 years, regarding the reasonable and beneficial use of Colorado River water; the ability to conserve, transfer and acquire conserved Colorado River water; the quantification and priority of Priorities 3(a) and 6(a)[10] within California for use of Colorado River water; and the obligation to implement and fund environmental impact mitigation.

[10] *Priorities 1, 2, 3(b), 6(b), and 7 of current Section 5 Contracts for the delivery of Colorado River water in the State of California and Indian and miscellaneous Present Perfected Rights within the State of California and other existing surplus water contracts are not affected by the QSA Agreement.*

Conserved water transfer agreements between IID and SDCWA, IID and CVWD, and IID and MWD are all part of the QSA/Transfer Agreements. For IID, these contracts identify conserved water volumes and establish transfer schedules along with price and payment terms. As specified in the agreements, IID will transfer nearly 415,000 AF annually over a 35-year period (or loner), as follows:

- to MWD 110,000 AF [modified to 105,000 AF in 2007],
- to SDCWA 200,000 AF,
- to CVWD and MWD combined 103,000 AF, and
- to certain San Luis Rey Indian Tribes 11,500 AFY of water.

All of the conserved water will ultimately come from IID system and on-farm efficiency conservation improvements. In the interim, IID has implemented a Fallowing Program to generate water associated with Salton Sea mitigation related to the impacts of the IID/SDCWA water transfer, as required by the State Water Resources Control Board, which is to run from 2003 through 2017. In return for its QSA/Transfer Agreements programs and deliveries, IID will receive payments totaling billions of dollars to fund needed efficiency conservation measures and to pay growers for conserved on-farm water, so IID can transfer nearly 14.5 MAF of water without impacting local productivity. In addition, IID will transfer to SDCWA 67,700 AFY annually of water conserved from the lining of the AAC in exchange for payment of lining project costs and a grant to IID of certain rights to use the conserved water. In addition to the 105,000 acre-feet of water currently being conserved under the 1988 IID/MWD Conservation Program, these more recent agreements define an additional 303,000 AFY to be conserved by IID from on-farm and distribution system conservation projects for transferred to SDCWA, CVWD, and MWD.

COLORADO RIVER WATER DELIVERY AGREEMENT (2003) [10]

As part of QSA/Transfer Agreements among California and federal agencies, the Colorado River Water Delivery Agreement: Federal QSA for purposes of Section 5(b) Interim Surplus Guidelines (CRWDA) was entered into by the Secretary of the Interior, IID, CVWD, MWD and SDCWA. This

[10] *CRWDA: Federal QSA accessed 7 June 2017.*

agreement involves the federal government because of the change in place of diversion from Imperial Dam into the All-American Canal to Parker Dam into MWD's Colorado River Aqueduct. The CRWDA assists California to meet its "4.4 Plan" goals by quantifying deliveries for a specific number of years for certain Colorado River entitlements so transfers may occur. In particular, for the term of the CRWDA, quantification of Priority 3(a) was affected through caps on water deliveries to IID (consumptive use of 3.1 MAF per year) and CVWD (consumptive use of 330 KAF per year). In addition, California's Priority 3(a) apportionment between IID and CVWD, with provisions for transfer of supplies involving IID, CVWD, MWD and SDCWA are quantified in the CRWDA for a period of 35 years or 45 years (assumes SDCWA does not terminate in year 35) or 75 years (assumes SDCWA and IID mutually consent to renewal term of 30 years).

Allocations for consumptive use of Colorado River water by IID, CVWD and MWD that will enable California to stay within its basic annual apportionment (4.4 MAF plus not less than half of any declared surplus) are defined by the terms of the QSA/Transfer Agreements (**Table 12**). As specified in the QSA/Transfer Agreements, by 2026, IID annual use within (Imperial Valley) is to be reduced to just over 2.6 MAF of its 3.1 MAF quantified annual apportionment. The remaining nearly 500,000 AF (which includes the 67,000 AF from AAC lining) are to be transferred annually to urban water users outside of the Imperial Valley.

Table 12 CRWDA Annual 4.4 MAF Apportionment (Priorities 1 to 4) for California Agencies (AFY)

User	Apportionment (AFY)
Palo Verde Irrigation District and Yuma Project*	420,000
Imperial Irrigation District	3,100,000
Coachella Valley Water District	330,000
Metropolitan Water District of Southern California*	550,000
Total:	4,400,000

* PVID and Yuma Project did not agree to a cap; value represents a contractual obligation by MWD to assume responsibility for any overages or be credited with any volume below this value.
Notes: All values are consumptive use at point of Colorado River diversion: Palo Verde Diversion Dam (PVID), Imperial Dam (IID and CVWD), and Parker Dam (MWD). Source: IID Annual Water Report

Quantification of Priority 6(a) was effected through quantifying annual consumptive use amounts to be made available in order of priority to MWD (38 KAF), IID (63 KAF), and CVWD (119 KAF) with the provision that any additional water available to Priority 6(a) be delivered under IID's and CVWD's existing water delivery contract with the Secretary.[10] The CRWDA provides that the underlying water delivery contract with the Secretary remain in full force and effect. (*Colorado River Documents 2008*, Chapter 6, pages 6-12 and 6-13). The CRWDA also provides a source of water to effect a San Luis Rey Indian Water rights settlement. Additionally, the CRWDA satisfies the requirement of the 2001 Interim Surplus Guidelines (ISG) that a QSA be adopted as a prerequisite to the interim surplus determination by the Secretary in the ISG.

INADVERTENT OVERRUN PAYBACK POLICY (2003)

The CRWDA Inadvertent Overrun Payback Policy (IOPP), adopted by the Secretary contemporaneously with the execution of the CRWDA, provides additional flexibility to Colorado River management and applies to entitlement holders in the Lower Division States (Arizona, California and Nevada).[11] The IOPP defines inadvertent overruns as "Colorado River water diverted, pumped, or received by an entitlement holder of the Lower Division States that is in excess of the water users' entitlement for the year." An entitlement holder is allowed a maximum overrun of 10 percent (10%) of its Colorado River water entitlement.

In the event of an overrun, the IOPP provides a mechanism to payback the overrun. When the Secretary has declared a normal year for Colorado River diversions, a contractor has from one to three years to pay back its obligation, with a minimum annual payback equal to 20 percent of the entitlement holder's maximum allowable cumulative overrun account or 33.3 percent of the total account balance, whichever is greater. However, when Lake Mead is below 1125 feet on January 1, the terms of the IOPP require that the payment of the inadvertent overrun obligation be made

[10] When water levels in the Colorado River reservoirs are low, Priority 5, 6 and 7 apportionments are not available for diversion.

[11] *USBR, 2003 CRWDA ROD Implementation Agreement, IOPP and Related Federal Actions Final EIS. Section IX. Implementing the Decision A. Inadvertent Overrun and Payback Policy. Pages 16-19 of 34.*

in the calendar year after the overrun I reported in the USBR Lower Colorado Region Colorado River Accounting and Water Use Report [for] Arizona, California, and Nevada (Decree Accounting Report)..[10]

1970 CRITERIA FOR COORDINATED LONG-RANGE OPERATION OF COLORADO RIVER RESERVOIRS

The 1970 Operating Criteria control operation of the Colorado River reservoirs in compliance with requirements set forth in the Colorado River Compact of 1922, the United States-Mexico Water Treaty of 1944, the Colorado River Storage Project Act of 1956, the Boulder Canyon Projects Act (Lake Mead) and the Colorado River Basin Project Act (Upper Basin Reservoirs) of 1968, and other applicable federal laws. Under these Operating Criteria, the Secretary makes annual determinations published in the USBR Annual Operating Plan for Colorado River Reservoirs (discussed below) regarding the release of Colorado River water for deliveries to the lower basin states. A requirement to equalize active storage between Lake Powell and Lake Mead when there is sufficient storage in the Upper Basin is included in these operating criteria. **Figure 5** identifies the major storage facilities at the upper and lower basin boundaries.

ANNUAL OPERATING PLAN FOR COLORADO RIVER RESERVOIRS (Applicable Only if Lake Mead has Surplus/Shortage)

The AOP is developed in accordance with Section 602 of the Colorado River Basin Project Act (Public Law 90-537); the Criteria for Coordinated Long-Range Operations of Colorado River Reservoirs Pursuant to the Colorado River Basin Project Act of 1968, as amended, promulgated by the Secretary of the Interior; and Section 1804(c)(3) of the Grand Canyon Protection Act (Public Law 102-575). As part of the AOP process, the Secretary makes determinations regarding the availability of Colorado River water for deliveries to the lower basin states, including whether normal, surplus, and shortage conditions are in effect on the lower portion of the Colorado River.

[10] *2003 CRWDA ROD. Section IX. A.6.c,, page 18 of 34.*

2007 COLORADO RIVER INTERIM GUIDELINES FOR LOWER BASIN SHORTAGES (2007 INTERIM GUIDELINES)

A multi-year drought in the Colorado River Upper Basin triggered the need for the 2007 Interim Shortage Guidelines. In the summer of 1999, Lake Powell was essentially full with reservoir storage at 97 percent of capacity. However, precipitation fell off starting in October 1999 and 2002 inflow was the lowest recorded since Lake Powell began filling in 1963. [10],[11] By August 2011, inflow was 279 percent (279%) of average; however, drought resumed in 2012 and continued through calendar year 2020. Using the record in **Table 13,** average unregulated inflow to Lake Powell for water years 2000-2020 is 73.8 percent (73.8%); or if 2011 is excluded, 70.5 percent (70.5%) of the historic average, see Table 13.

Table 13: Unregulated Inflow to Lake Powell, Percent of Historic Average, 2000-2019

2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
62%	59%	25%	51%	49%	105%	73%	68%	102%	88%	73%
2011	**2012**	**2013**	**2014**	**2015**	**2016**	**2017**	**2018**	**2019**		
136%	35%	49%	90%	83%	80%	100%	43%	110%		

Source: Drought in the Upper Colorado River Basin (2000-2010), and UCR Water Operations: Historic Data (2011-2020)

2003 CRWDA ROD. Section IX. A.6.

c,, page 18 of 34.

s://www.usbr.gov/uc/feature/drought.html" Drought in the Upper Colorado River Basin. August 2011

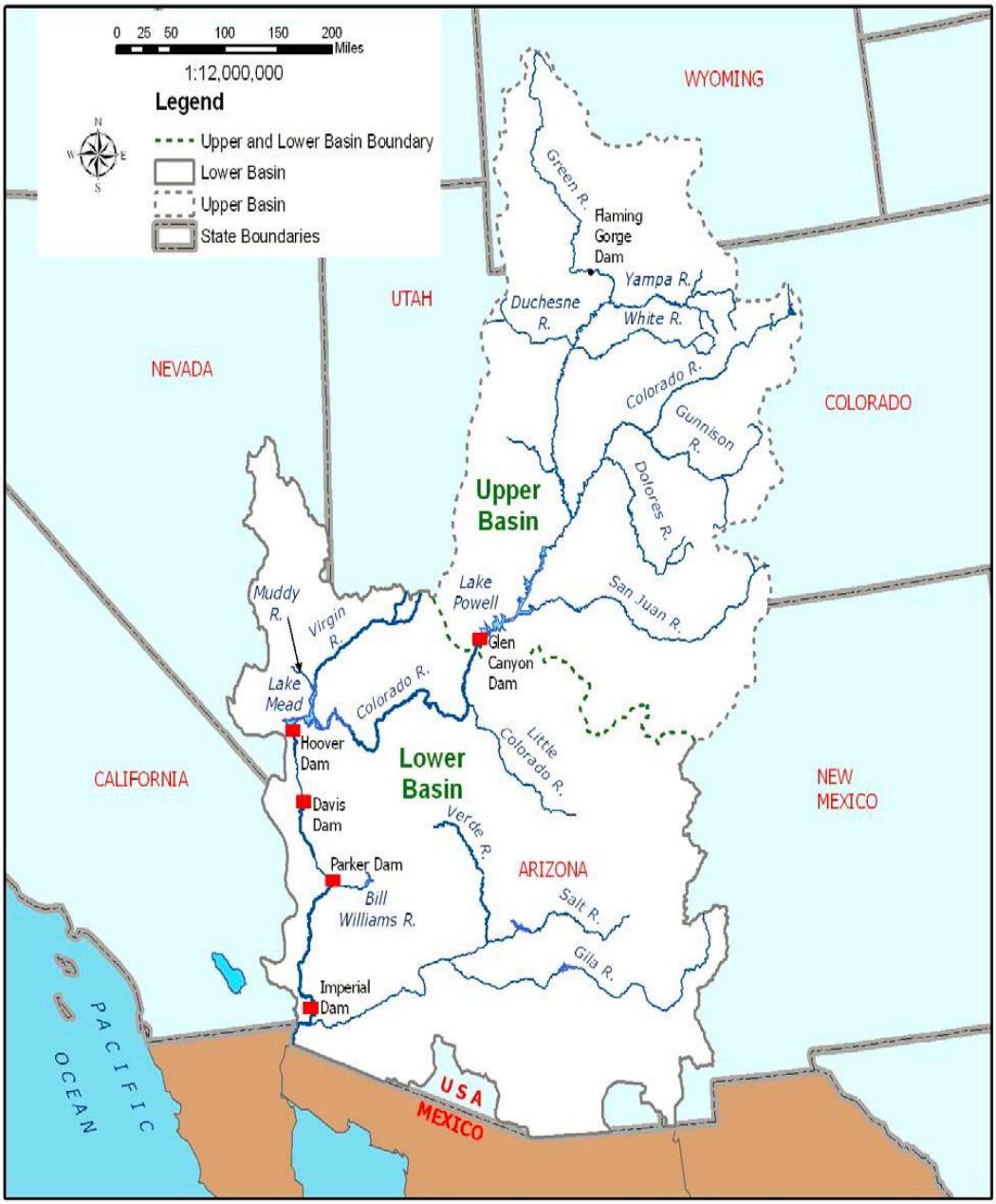


Figure 5 Major Colorado River Reservoir Storage Facilities and Basin Location Map

Source: **Final EIS – Colorado River Interim Guidelines for Lower Basin Shortages and Coordinated Operations for Lake Powell and Lake Mead, Volume 1 Chapter 1 Purpose and Need** , p I-10.

In the midst of the drought period, USBR developed 2007 Interim Guidelines with consensus from the seven basin states, which selected the Draft EIS Preferred Alternative as the basis for USBR's final determination. The basin states found the Preferred Alternative best met all aspects of the purpose and need for the federal action.[12]

The 2007 interim Guidelines Preferred Alternative highlights the following:

1. The need for the Interim Guidelines to remain in place for an extended period of time.
2. The desirability of the Preferred Alternative based on the facilitated consensus recommendation from the basin states.
3. The likely durability of the mechanisms adopted in the Preferred Alternative in light of the extraordinary efforts that the basin states and water users have undertaken to develop implementing agreements that will facilitate the water management tools (shortage sharing, forbearance, and conservation efforts) identified in the Preferred Alternative
4. That the range of elements in the Preferred Alternative will enhance the Secretary's ability to manage the Colorado River reservoirs in a manner that recognizes the inherent tradeoffs between water delivery and water storage.

In June 2007, USBR announced that a preferred alternative for Colorado River Interim Guidelines for Lower Basin Shortages and Coordinated Operations of Lake Powell and Lake Mead (Final Preferred Alternative) had been determined. The Final Preferred Alternative, based on the basin states' consensus alternative and an alternative submitted by the environmental interests called "Conservation Before Shortage," is comprised of four key operational elements which are to guide operations of Lake Powell and Lake Mead through 2026 are:

1. Shortage strategy for Lake Mead and Lower Division states: The Preferred Alternative proposed discrete levels of shortage volumes associated with Lake Mead elevations to conserve reservoir storage and provide water users and managers in the Lower Basin with

[12] USBR *Colorado River Interim Guidelines for Lower Basin Shortages and Coordinated Operations for Lake Powell and Lake Mead* <http://www.usbr.gov/lc/region/programs/strategies.html>

greater certainty to know when, and by how much, water deliveries will be reduced during low reservoir conditions.

2. Coordinated operations of Lake Powell and Lake Mead: The Preferred Alternative proposed a fully coordinated operation of the reservoirs to minimize shortages in the Lower Basin and to avoid risk of curtailments of water use in the Upper Basin.
3. Mechanism for storage and delivery of conserved water in Lake Mead: The Preferred Alternative proposed the Intentionally Created Surplus (ICS) mechanism to provide for the creation, accounting, and delivery of conserved system and non-system water thereby promoting water conservation in the Lower Basin. Credits for Colorado River or non-Colorado River water that has been conserved by users in the Lower Basin creating an ICS would be made available for release from Lake Mead at a later time. The total amount of credits would be 2.1 MAF, but this amount could be increased up to 4.2 MAF in future years.
4. Modifying and extending elements of the Interim Surplus Guidelines (ISG). The ISG determines conditions under which surplus water is made available for use within the Lower Division states. These modifications eliminate the most liberal surplus conditions thereby leaving more water in storage to reduce the severity of future shortages.

With respect to the various interests, positions and views of the seven basin states, this provision adds an important element to the evolution of the legal framework for prudent management of the Colorado River. Furthermore, the coordinated operation element allows for adjustment of Lake Powell releases to respond to low reservoir storage conditions in either Lake Powell or Lake Mead[12]. States found the Preferred Alternative best met all aspects of the purpose and need for the federal action.[13] The 2007 Interim Guidelines are in place from 2008 through December 31, 2025 (through preparation of the 2026 Annual Operating Plan).

[12] *For a discussion of the 2007 Interim Guidelines, see: Intermountain West Climate Summary by The Western Water Assessment, issued Jan. 21, 2008, Vol. 5, Issue 1, January 2009 Climate Summary, Feature Article, pages 5-7, 22 Mar 2013.*

[13] *USBR Colorado River Interim Guidelines for Lower Basin Shortages and Coordinated Operations for Lake Powell and Lake Mead.*

LOWER COLORADO REGION WATER SHORTAGE OPERATIONS

The drought in the Colorado River watershed has continued through 2020 despite an increase in observed runoff in August 2011 when unregulated inflow to Lake Powell was 279 percent of the average. Since 2000, Lake Mead has been below the "average" level of lake elevations (see **Figure 6**). Such conditions have caused the preparation of shortage plans for waters users in Arizona and Nevada, and in Mexico.

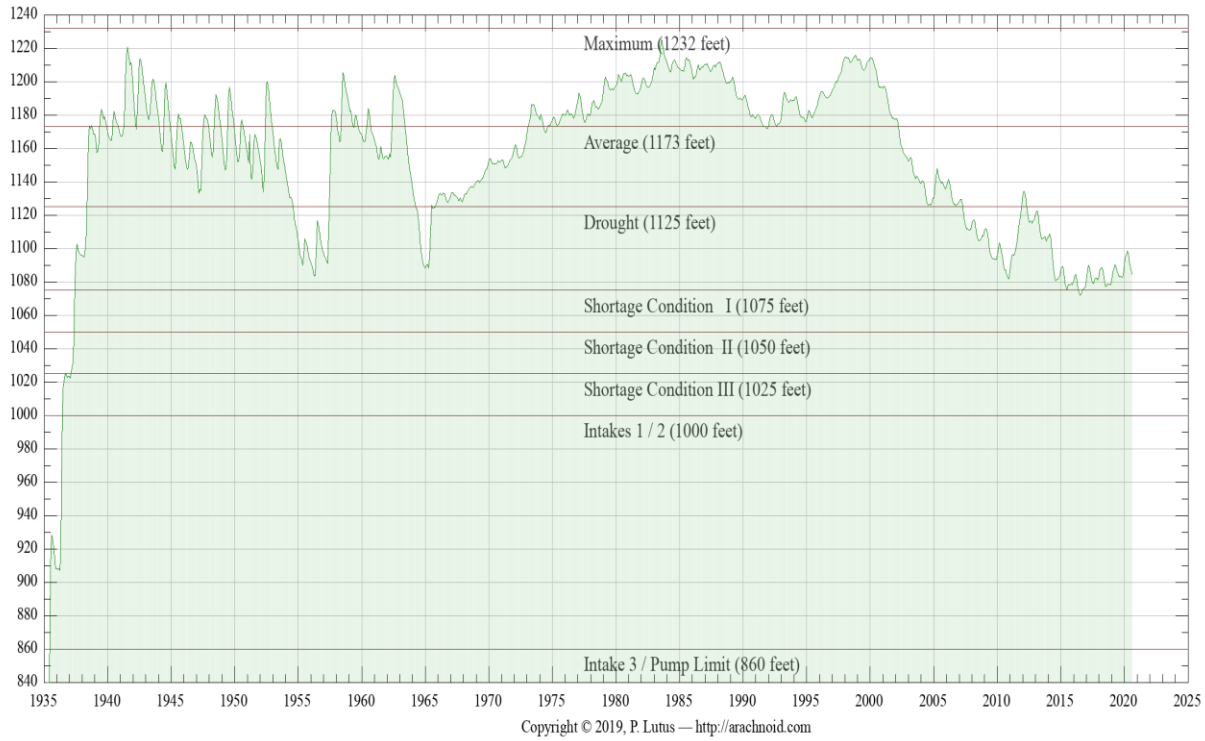


Figure 6: Lake Mead Water Elevation Levels 2020

visit <http://www.arachnoid.com/NaturalResources/index.html>

According to guidelines put in place in 2007, Arizona and Nevada begin to take shortages when the water elevation in Lake Mead falls below 1,075 feet. The volumes of shortages increase as water levels fall to 1,050 feet and again at 1,025 feet. In 2012, Mexico agreed to participate in a 5-year pilot agreement to share specific volumes of shortages at the same elevations. The 2007 interim shortage guidelines contain no reductions for California, which has senior water rights to

the Central Arizona Project water supply, through 2025 when the guidelines expire. If Lake Mead's elevation drops to 1,025 feet, a re-consultation process would be triggered among the basin states to address next steps. Consultation would start out within each state, then move to the three lower basin states, followed by all seven states and the USBR. Mexico will then be brought into the process unless they choose to participate earlier.

IMPERIAL IRRIGATION DISTRICT WATER SUPPLY AND DEMAND

SB 610 requires an analysis of a normal, single dry, and multiple dry water years to show that adequate water is available for the proposed Project in various climate scenarios. Water availability for this Project in a normal year is no different from water availability during a single-dry and multiple-dry year scenarios. This is due to the small effect rainfall has on water availability in IID's arid environment along with IID's strong entitlements to the Colorado River water supply. Local rainfall does have some impact on how much water is consumed (i.e. if rain falls on agricultural lands, those lands will not demand as much irrigation), but does not impact the definition of a normal year, a single-dry year or a multiple-dry year scenario.

WATER AVAILABILITY – NORMAL YEAR

IID is entitled to annual net consumptive use of 3.1 MAF of Colorado River, less its QSA/Transfer Agreement obligations. Imperial Dam, located north of Yuma, Arizona, serves as a diversion structure for water deliveries throughout southeastern California, Arizona and Mexico. Water is transported to the IID water service area through the AAC for use throughout the Imperial Valley. IID historic and forecast net consumptive use volumes at Imperial Dam from CRWDA Exhibit B are shown in Table 14. Volumes 2003-2020 are adjusted for USBR Decree Accounting historic records.

Volumes for 2021-2077 are from CRWDA Exhibit B modified to reflect 2014 Letter Agreement changes to the 1988 IID/MWD Water Conservation Agreement.[12]

GROUNDWATER, AGRICULTURAL PRACTICES AND DRAINAGE

Groundwater underlying the Imperial Valley is generally of poor quality unsuitable for domestic or irrigation purposes. Groundwater in the area of the project is brackish (contains a high salt content). Agricultural practices in the Imperial Valley, including in the project vicinity, consist of aerial and ground application of pesticides and application of chemical fertilizers to both ground and irrigation water at the farm delivery gate. Most of the agricultural fields in the valley are underlain by tile drainage systems (perforated pipelines encapsulated by sand/gravel) installed at a depth of approximately 5 to 7 feet below the ground surface. The tile drains maintain groundwater at levels below the root system of crops. The tile drains transport soluble salts contained in the Colorado River water and that are leached from the soil profile during irrigation. The tile drainage is collected in IID's drainage system, most of which discharges into the New and Alamo rivers and flows to the Salton Sea. A few IID drains discharge directly to the Salton Sea.

[12] 2014 Imperial Irrigation District Letter Agreement for Substitution and Conservation Modifications to the IID/MWD Water Conservation Agreement - December 17, 2014.

Table 14 IID Historic and Forecast Net Consumptive Use for Normal Year, Single-Dry Year and Multiple-Dry Year Water Supply, 2003-2037, et seq. (CRWDA Exhibit B)

IID Quantification and Transfers, Volumes in KAF at Imperial Dam [1]										
Col 1	2	3	4	5	6	7	8	9	10	11
	IID Priority 3(a)									
		IID Reductions								
Year	IID 3(a) Quantified Amount	1988 MWD Transfer [2]	SDCWA Transfer	AAC Lining	Salton Sea Mitigation SDCWA Transfer [3]	Intra-Priority 3 CVWD Transfer	MWD Transfer w\ Salton Sea Restoration [4]	Misc. PPRs	IID Total Reduction (Σ Cols 3-9) [5]	IID Net [Available for] Consumptive Use (Col 2 - 10)
2003	3,100	105.1	10.0	0.0	0.0	0.0	0.0	11.5	126.6	2978.2
2004	3,100	101.9	20.0	0.0	15.0	0.0	0.0	11.5	148.4	2743.9
2005	3,100	101.9	30.0	0.0	15.0	0.0	0.0	11.5	158.4	2756.8
2006	3,100	101.2	40.0	0.0	20.0	0.0	0.0	11.5	172.7	2909.7
2007	3,100	105.0	50.0	0.0	25.0	0.0	0.0	11.5	191.5	2872.8
2008	3,100	105.0	50.0	8.9	26.0	4.0	0.0	11.5	205.4	2825.1
2009	3,100	105.0	60.0	65.5	30.1	8.0	0.0	11.5	280.1	2566.7
2010	3,100	105.0	70.0	67.7	33.8	12.0	0.0	11.5	294.8	2540.5
2011	3,100	103.9	63.3	67.7	0.0	16.0	0.0	11.5	262.4	2915.8
2012	3,100	104.1	106.7	67.7	15.2	21.0	0.0	11.5	326.2	2,903.2
2013	3,100	105.0	100.0	67.7	71.4	26.0	0.0	11.5	381.6	2,554.9
2014	3,100	104.1	100.0	67.7	89.2	31.0	0.0	11.5	403.5	2,533.4
2015	3,100	107.82	100.0	67.7	153.3	36.0	0.0	11.5	476.3	2,480.9
2016	3,100	105.0	100.0	67.7	130.8	41.0	0.0	11.5	456.0	2,504.3
2017	3,100	105.0	100.0	67.7	105.3	45.0	0.0	9.9	434.5	2,548.2
2018	3,100	105	130	67.7	0.1	63	0.0	11.5	377.3	2,722.8
2019	3,100	105	160	67.7	46.55	68	0.0	11.5	458.75	2,687.8
2020	3,100	105	193	67.7	0.0	73	0.0	11.5	450.2	2,649.8
2021	3,100	105	205	67.7	0	78	0	11.5	467.2	2,632.8
2022	3,100	105	203	67.7	0	83	0	11.5	470.2	2,629.8
2023	3,100	105	200	67.7	0	88	0	11.5	472.2	2,627.8
2024	3,100	105	200	67.7	0	93	0	11.5	477.2	2,622.8
2025	3,100	105	200	67.7	0	98	0	11.5	482.2	2,617.8
2026	3,100	105	200	67.7	0	103	0	11.5	487.2	2,612.8
2027	3,100	105	200	67.7	0	103	0	11.5	487.2	2,612.8
2028	3,100	105	200	67.7	0	103	0	11.5	487.2	2,612.8
2029-37	3,100	105	200	67.7	0	103	0	11.5	487.2	2,612.8
2038-47 [6]	3,100	105	200	67.7	0	103	0	11.5	487.2	2,612.8
2048-77 [7]	3,100	105	200	67.7	0	50 [8]	0	11.5	434.2	2,665.8

1. 2003 through 2020, volumes are adjusted for actual USBR Decree Accounting values; IID Total Reduction and Net Available for Consumptive Use may not equal Col 2 minus Col 10, if IID conservation/use was not included in Exhibit B.
2. 2014 Letter of Agreement provides that, effective January 2016 total amount of conserved water available is 105 KAFY
3. Salton Sea Mitigation volumes may vary based on conservation volumes and method of conservation.
4. *This transfer is not likely given lack of progress on Salton Sea restoration as of 2018; shaded entries represents volumes that may vary..*
5. Reductions include conservation for 1988 IID/MWD Transfer, IID/SDCWA Transfer, AAC Lining; SDCWA Transfer Mitigation, MWD Transfer w/Salton Sea Restoration (if any); Misc. PPRs. Amounts are independent of increases and reductions as allowed by the IOPP.
6. Assumes SDCWA does not elect termination in year 35.
7. Assumes SDCWA and IID mutually consent to renewal term of 30 years.
8. Modified from 100 KAFY in CRWDA Exhibit B; stating in 2018 MWD will provide CVWD 50 KAFY of the 100 KAFY.

Source: CRWDA: Federal QSA Exhibit B, p 13; updated values from 2019 QSA Implementation Report

Due to limits on annual consumptive use of Colorado River water under the QSA/Transfer Agreements, IID's water supply during a normal year is best represented by the CRWDA Exhibit B Net Available for Consumptive Use (Table 14, **Column 11**). The annual volume is IID Priority 3(a) Quantified Amount of 3.1 million acre-feet (MAF) (Table 14, **Column 2)** less the IID transfer

program reductions for each year (Table -14, Columns 3-9). IID suggests Table 14 which assumes full use of IID's quantified water supply, be used in determining base normal year water availability. CRWDA Exhibit B Net Available for Consumptive Use volumes less system operation demand represents the amount of water available for delivery by IID Water Department to its customers each year. In a normal year, perhaps 50,000 to 100,000 AF of effective rainfall would fall in the IID water service area. However, rainfall is not evenly distributed throughout the IID water service area and is not taken into account by IID in the submittal of its Estimate of Diversion (annual water order) to the USBR.

EXPECTED WATER AVAILABILITY – SINGLE DRY AND MULTIPLE DRY YEARS

When drought conditions exist within the IID water service area, as has been the case for the past decade or so, the water supply available to meet agricultural and non-agricultural water demands remains the same as normal year water supply because IID continues to rely solely on its entitlement for Colorado River water. Due to the priority of IID water rights and other agreements, drought conditions affecting Colorado River water supplies cause shortages for Arizona, Nevada and Mexico, before impacting California and IID. Accordingly, the Net Available for Consumptive Use volumes in Table 14 Column 11 represents the water supply at Imperial Dam available for diversion by IID in single-dry year and multiple-dry year scenarios.

Under CRWDA Inadvertent Overrun Payback Policy (IOPP), IID has some flexibility to manage its water use. When the water level in Lake Mead is above 1,125 feet, an overrun of its USBR approved annual water order is permissible, and IID has up to three years to pay water use above the annual water order. When Lake Mead's water level is at or below 1,125 feet on January 1 in the calendar year after the overrun is reported in the USBR Lower Colorado Region Decree Accounting Report, the IOPP prohibits additional overruns and requires that outstanding overruns be paid back in the

subsequent calendar year rather than in three years as allowed under normal conditions; that is, the payback is to be made in the calendar year following publication of the overrun in the USBR Decree Accounting Report. For historic IID annual rainfall, net consumptive use, transfers and IID underrun/overrun amounts see Table 14. For the purposes of the WSA , years with a shortage condition that impacts non-agricultural projects such as an IOPP payback obligation constitute "dry" years for IID.

In years of inadvertent overrun payback, conditions such as those in Sections 3.7 and 3.8 of the 2012 IWSP Water Agreement may go into effect, with the result that less water would be available for non-agricultural development contractors. Under such conditions, IID has requested that ES Minerals management work with IID to ensure it can manage the reduction. IID has further indicated that, provided a water supply agreement is approved and executed by IID under the provisions of the IWSP, IID will have sufficient water to support the water of this Project.

Table 15: IID Annual Rainfall (In), Net Consumptive Use and Underrun/Overrun Amounts (AF), 1988-2018

Year	IID Total Annual Rainfall	IID Water Users	IID/MWD Transfer	IID/ SDCWA Transfer	SDCWA Transfer Salton Sea Mitigation	IID Underrun / Overrun	IID/CVWD Transfer	AAC Lining
1988		2,947,581						
1989		3,009,451						
1990	91,104	3,054,188	6,110					
1991	192,671	2,898,963	26,700					
1992	375,955	2,575,659	33,929					
1993	288,081	2,772,148	54,830					
1994	137,226	3,048,076	72,870					
1995	159,189	3,070,582	74,570					
1996	78,507	3,159,609	90,880					
1997	64,407	3,158,486	97,740					
1998	100,092	3,101,548	107,160					
1999	67,854	3,088,980	108,500					
2000	29,642	3,112,770	109,460					
2001	12,850	3,089,911	106,880					
2002	12,850	3,152,984	104,940					
2003	116,232	2,978,223	105,130	10,000	0	**6,555**		
2004	199,358	2,743,909	101,900	20,000	15,000	166,408		
2005	202,983	2,756,846	101,940	30,000	15,000	159,881		
2006	19,893	2,909,680	101,160	40,000	20,000	**12,414**		
2007	64,580	2,872,754	105,000	50,000	25,021	**6,358**		
2008	63,124	2,825,116	105,000	50,000	26,085	47,999	4,000	8,898
2009	30,0354	2,566,713	105,000	60,000	30,158	237,767	8,000	65,577
2010	189,566	2,545,593	105,000	70,000	33,736	207,925	12,000	67,700
2011	109,703	2,915,784	103,940	63,278	0	**82,662**	16,000	67,700
2012	133,526	2,903,216	104,140	106,722	15,182	**134,076**	21,000	67,700
2013	134,497	2,554,845	105,000	100,000	71,398	65,981	26,000	67,700
2014	53,517	2,533,414	104,100	100,000	89,168	797	31,000	67,700
2015	97,039	2,480,933	107,820	100,000	153,327	97,188	36,000	67,700
2016	90,586	2,504,258	105,000	100,000	130,796	62,497	41,000	67,700
2017	105,919	2,548,164	105,000	100,000	105,311	30,227	45,000	67,700
2018	63,318	2,625,422	105,000	130,000	0	0	63,000	67,700
2019	146,384	2,558,136	105,000	160,000	46,555	34,215	68,000	67,700
2020	146,384	2,558,136	105,000	160.000	46,555	34,215	68,000	67,000

Notes: Volumes in acre-feet and except Total Annual Rainfall are USBR Decree Accounting Report record at Imperial Dam.

IID Total Annual Rainfall from IID Provisional Water Balance, first available calculations are for 1990

Not all IID QSA programs are shown on this table.

Source: USBR Decree Accounting reports, except IID Total Rainfall and IID Overrun/Underrun is a separate calculation

Source: 2019 IID QSA Implementation Report and 2019 IID SWRCB Report, page 31 of 335; IID Total Rainfall and IID Overrun/ Underrun is a separate calculation

Equitable Distribution Plan

A 2006 study by Hanemann and Brookes suggested that such conditions were likely to occur 40-50% of the years during the decade following the report. On November 28, 2006, the IID Board of Directors adopted Resolution No 22-2006 approving development and implementation of an Equitable Distribution Plan to deal with times when customers' demand would exceed IID's Colorado River supply. The EDP, adopted in 2007 allows the IID Board to institute an apportionment program. As part of this Resolution, the IID Board directed the General Manager to prepare the rules and regulations necessary or appropriate to implement the plan within the district, which the board adopted in November 2006. The 2009 Regulations for EDP were created to enable IID to implement a water management tool (apportionment) to address years in which water demand is expected to exceed supply. So far, for the 17 years from 2003 through 2020, demand has exceeded supply by some amount for a total of five years (see Table 15**,** above). IID has not experienced any overruns since 2014.

The IID 2013 Revised EDP, adopted by the Board on October 28, 2013, further allowed IID to pay back its outstanding overruns using an EDP Apportionment, and it was expected that an annual EDP Apportionment would be established for each of the next several years, if not for the duration of the QSA/Transfer Agreements. For purposes of this WSA, years with a shortage condition that impacts non-agricultural projects such as an IOPP payback obligation constitute "dry" years for IID. For single-dry year and multiple-dry water year assessments, IID's EDP shall govern. IOPP payback, EDP Apportionment, and the IWSP are further discussed under single-dry and multiple-dry year projections. However, the implementation of the EDP apportionment was legally challenged, and on February 6, 2018, the IID board approved a resolution repealing the EDP until the issue is resolved. As of the date of this WSA, a resolution had been reached, but a modified EDP has yet to be re-instated.

WATER MANAGEMENT UNDER INADVERTENT OVERRUN PAYBACK POLICY (IOPP)

On January 1, 2013, the water level in Lake Mead was 1120.5 feet and for the first time since the IOPP came into effect, Lower Colorado River Basin water users faced a shortage condition (**Figure 6**). For IID, this means that outstanding overruns must be paid back to the river in calendar years following the shortage (2013 and 2014) as described below and shown in Table 16.

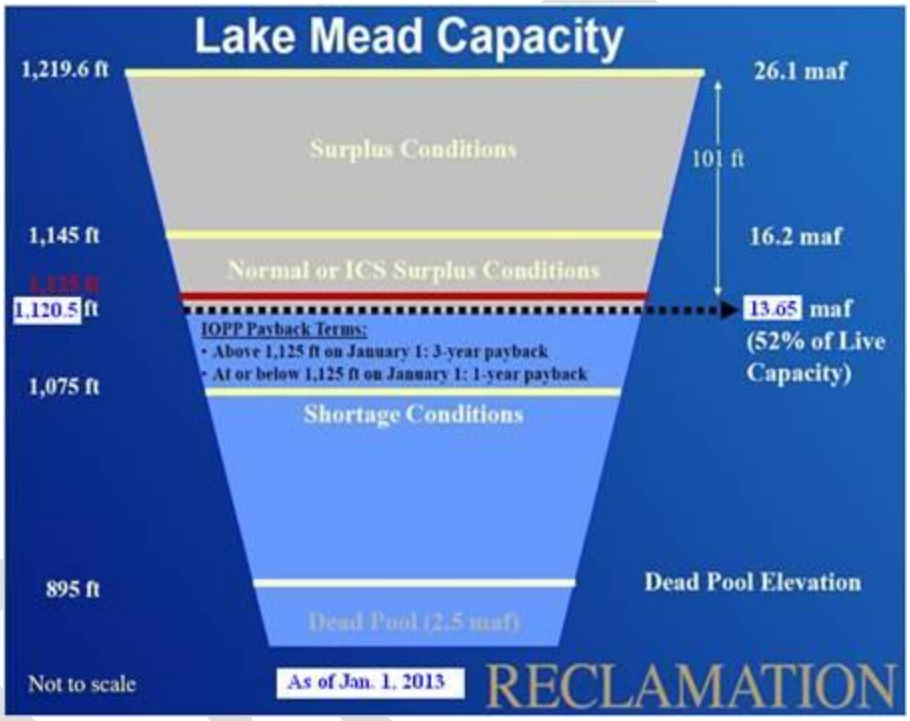


Figure 7 Lake Mead IOPP Schematic

IID's maximum allowable cumulative overrun account is 62,000 AF.[12] Thus, for IID's 2011 overrun of 82,662 AF (which was published in 2012), 62,000 AF were paid back at the river in calendar year 2013, with the remaining 20,662 AF paid back in 2014; however, due to an early payback of 6,290 AF in 2012, IID had 55,710 AF to pay back in 2013 and 20,662 AF of the 2011 overrun to pay back in 2014. In addition, because of the low level of Lake Mead on Jan 1, 2013, IID's entire 2012 overrun of 134,076 AF was paid back in 2014, for a total of 154,738 AF in 2014. Furthermore,

[12] For IID Quantified Amount: 3.1 MAFY *10 percent = 310,000 AF allowable cumulative overrun account amount; minimum repayment in a calendar year is the less of 310,000 * 20 percent = 62,000 or the amount in the account, if less than 62,000 AF.

under the terms of the IOPP, no overruns are allowed in year when payback is required. IID has not experienced any overrun payback since 2014.

Table 16; IID Inadvertent Overrun Payback to the Colorado River under the IOPP, 2012-2020

Calendar Year of Payback	2011 Overrun Payback (AF)	2012 Overrun Payback (AF)	Payback Total for 2014 Calendar Year (AF)
2013	55,710	-	55,710
2014	20,662	134,076	154,738
Total Payback	76,372	134,076	210,448

The 2013 IOPP payback obligation and prohibition on overruns in payback years, led the IID Board to implement an apportionment program pursuant to the 2009 Regulations for EDP, which were subsequently revised and modified. The Revised 2013 EDP was version approved and adopted by the IID Board on October 28, 2013 (see Attachment B). The Revised 2013 EDP also establishes an agriculture water clearinghouse to facilitate the movement of apportioned water between agricultural water users and between farm units. This is to allow growers and IID to balance water demands for different types of crops and soils with the apportionment s that are made. IID's Water Conservation Committee agreed on a July 1, 2013 start date for the agricultural water clearinghouse.

Generally, the EDP Apportionment is not expected to impact industrial use. However, given the possibility of continuing drought on the Colorado River and other stressors, provisions such as the 2012 IWSP Water Agreement sections 3.7 and 3.8 as well for dry and multiple dry year water assessment may come into effect. However, IID has agreed to work with Project proponents to ensure to the extent possible that the IWSP Water Agreement terms will not negatively impact Project operation.

PROJECT WATER AVAILABILITY FOR A 30-YEAR PERIOD TO MEET PROJECTED DEMANDS

The proposed Project water will be used solely for processing plant operations, fire suppression, landscaping and dust mitigation measures as previously stated. The applicant will be accepting an agreement with Energy Source Hudson Ranch 1 for Sewer and Potable water needs, it is at this point in which the applicant will need to retain a separate meter. The Applicant is proposing to draw water primarily from the O Lateral Gate 32. Currently that gate is being used by Hudson Ranch 1, and it is likely that IID Water Engineering will require that the applicant retain a separate meter. The applicant is required to enter into a(n) IWSP Water Supply Agreement with IID and Schedule 7. General Industrial Use.

Imperial County Entitlement Discretionary Permits Include:

- Existing Conditional Use Permit (CUP #06-0047) for Hudson Ranch 1
- Imperial County Planning Department – Minor Subdivision (120-020-044, -046, -025)
- Imperial County Planning Department – Conditional Use Permit
- Imperial County Planning Department – Development Agreement (if required)
- Imperial County Building Department – Building and Grading Permits
- Imperial County Public Works Department – Encroachment Permit(s)

INTERIM WATER SUPPLY POLICY WATER

At the present time, IID is providing water for use by solar energy generation projects under Water Rate Schedule 7 General Industrial Use. If IID determines that the proposed Project should obtain water under IID's Interim Water Supply Policy (IWSP) for non-agricultural projects rather than Schedule 7 General Industrial Use, the Applicant will do so. IID will determine whether the Project should obtain water under IID's Interim Water Supply Policy (IWSP) for non-agricultural projects in addition to Schedule 7 General Industrial Water.

The IWSP, provided herein as Attachment A, designates up to 25,000 AFY of water for potential Non-Agricultural Projects within IID's water service area. As of June 2019, IID has 23,800 AF available under the IWSP for new projects such as the proposed project. The IWSP establishes a schedule for Processing Fees, Reservation Fees, and Connection Fees that change each year for all non-agricultural projects, and annual Water Supply Development fees for some non-agricultural projects. The proposed Project's water use will be subject to the annual Water Supply Development fee if IID determines that water for the Project is to be supplied under the IWSP.
The likelihood that IID will not receive its annual 3.1 MAF apportionment less QSA/Transfer Agreement obligations of Colorado River water is low due to the high priority of the IID entitlement relative to other Colorado River contractors, see **IID's Water Rights** section on page 35. If such reductions were to come into effect within the 30-year Project life, the Applicants are to work with IID to ensure any reduction can be managed.

As such, lower Colorado River water shortage does not present a material risk to the available water supply that would prevent the County from making the findings necessary to approve this WSA. IID, like any water provider, has jurisdiction to manage the water supply within its service area and impose conservation measures during a period of temporary water shortage. Furthermore, without the proposed Project, IID's task of managing water supply under the QSA/Transfer Agreements would be more difficult, because agricultural use on the proposed Project site would be significantly higher than the proposed demand for the proposed Project as explained in section Expected Water Demand For the Proposed Project that follows.

Water for construction (primarily for dust control) would be obtained from IID canals or laterals in conformance with IID rules and regulations for MCI temporary water use.[12] Water would be picked

[12] *Complete the Application for Temporary Water Use and submit to Division office. Complete encroachment permit through Real Estate – non-refundable application fee of $250, se. IID website: Real Estate / Encroachments, Permissions, and Other Permitting. Fee for temporary service water: Schedule No. 7 General Industrial Use / Temporary Service Minimum charge for up to 5 AF, pay full flat fee for 5 AF at General Industrial Use rate ($425); use more than 5 AF, pay fee for actual use at General Industrial Rate ($85/AF).*

up from a nearby canal or lateral and delivered to the construction location by a water truck capable of carrying approximately 4,000 gallons per load. To obtain water delivery service, the applicant will complete an IID-410 Certificate of Ownership and Authorization (Water Card), which allows the Water Department to provide the district with information needed to manage the district apportioned supply. Water cards are used for Agriculture, Municipal, Industrial and Service Pipe accounts. If water is to be provided under IWSP in addition to Schedule 7. General Industrial Use, the applicant will seek to enter into a IWSP Water Supply Agreement. .

EXPECTED WATER DEMANDS FOR THE APPLICANT

Water for the Project will be needed on-site for the processing of. Untreated Colorado River water will be supplied to the project via the adjacent "O" or "N" Lateral under an IWSP Water Supply Agreement with IID. The Current land use is M-2-G-PE, for APNs 120-020-144, -046, -025. As described in the project description. The proposed project intends to enter into an agreement HR-1 to provide potable water needs which has the ability to provide the applicant with treated water. Therefore, the proposed project will only need the water requested in this Water Supply Assessment. The Project will need to contract with IID to deliver up to 3,400 AFY of untreated water, via the IID "O" lateral Gate 32 as the primary source and "N" lateral as the secondary option (proposed new service line). The Project is anticipated to use approximately 3,400 AFY of water to operate a commercial lithium hydroxide production plant and necessary plant operation mitigation. The project will increase the demand for water for this delivery gate 32 which is the project's primary gate and new gate on the "N" lateral will be used for emergency needs.[12] Project raw water uses are summarized in in in Table 17.

[12] Should IID Water Engineering require a separate meter and or another gate used. Applicant will be required to make those accommodations to satisfy IID requirements.

Table 17 Project Water Uses (AFY)

Water Use	Acre-Feet Per Year
Raw Water for Processing (Years 30)	3,393.00 AFY
Raw Water for Landscaping	1.00 AFY
Raw Water for Fire Suppression	2.00 AFY
Raw Water for Dust Mitigation	4.00 AFY
TOTAL	3,400.00 AFY

IID delivers untreated Colorado River water to the proposed Project site for geothermal energy uses through the following gates and laterals. The 10-year record for 2010-2019 of water delivery accounting is shown in Table 18 and has a ten-year historic average in AFY.

Table 18 Ten-Year Historic Delivery (AFY), 2010-2019

Gate/Canal	2010	2011	2012	2013	2014	2015	2016	2017	2918	2019
"O" Lateral Gate 32	0	88	937.6	1478.4	1422.3	1604.4	1417.6	1532.6	1363.9	1504.6
Total	0	88	937.6	1478.4	1422.3	1604.4	1417.6	1532.6	1363.9	1504.6

Source: *IID Staff, July 13, 2020 (Jose Moreno)*

It is important to note that the historical water use of 1,127.0 AFY for the "O" Lateral Gate 32 represents water use for current operations for geothermal industrial activities. Water use for the new proposed Project will be used for the purpose of commercial lithium hydroxide production plant and will be done through a separate company and will be in addition of the current water supply. The "N" Lateral will be a new connection. The proposed Project is anticipated to have an estimated water demand of 112 AF for the first two years of construction and 102,000 AF or 3,400 AFY amortized over a 30-year term (for all delivery gates for new Project). Thus, the proposed Project demand is an increase of 2,273 AFY from the historical 10-year average annual delivery of 1,127 AFY or 202%[13] more than the historical 10-year average annual delivery for the proposed Project site. The proposed Project's estimated water demand represents 14 percent (14%) of the 23,800 AYF balance of supply available for contracting under the IWSP.

[13] Project Anticipated Water Use Increase –Historical Average/ Historical Average *100 =% Increase

Table 19: Total Historical Delivery for Proposed Project Delivery Gates (AF), 10- Year Total, 10 Year Average, 2010-2019

	10 -Year Total (AF)	10-Year Average (AFY)
Historic Delivery Yield	11,269.4	1,127.0

Source: *IID Staff, July 13, 2020 (Jose Moreno)*

IID'S ABILITY TO MEET DEMANDS WITH WATER SUPPLY

Non-agricultural water demands for the IID water service area are projected for 2020-2055 in Table 8, and IID agricultural demands including system operation are projected for 2020-2055 in Table 9, all volumes within the IID water service area. IID water supplies available for consumptive use after accounting for mandatory transfers are projected to 2077 in Table 14 (Column 11), volumes at Imperial Dam. To assess IID's ability to meet future water demands, IID historic and forecasted demands are compared with CRWDA Exhibit B net availability, volumes at Imperial Dam Table 14 (Column 11). The analysis requires accounting for system operation consumptive use within the IID water service area, from AAC at Mesa Lateral 5 to Imperial Dam, and for water pumped for use by the USBR Lower Colorado Water Supply Project (LCRWSP), an IID consumptive use component in the USBR Decree Accounting Report. IID system operation consumptive use for 2015 is provided in Table 15 to show the components included in the calculation and their 2015 volumes.

Table 20 IID System Operations Consumptive Use within IID Water Service Area and from AAC at Mesa Lateral 5 to Imperial Dam, (KAF), 2019

	Consumptive Use (KAF)
IID Delivery System Evaporation	24.6
IID Canal Seepage	91.7
IID Main Canal Spill	13.1
IID Lateral Canal Spill	118.1
IID Seepage Interception	-39.8
IID Unaccounted Canal Water	30.9
Total IID System Operational Use, within water service area	**238.6**

"Losses" from AAC @ Mesa Lat 5 to Imperial Dam	29.2
LCWSP pumpage	-10
Total System Operational Use in 2019	**257.8**

Sources: 2015 Water Balance rerun 04/22/2020, and 2016 IID Water Conservation Plan

IID's ability to meet customer water demands through 2055 as shown in Table 21.

- Non-agricultural use from Table 8
- Agricultural and Salton Sea mitigation uses from Table 9
- CRWDA Exhibit B net available for IID consumptive use from Table 14
- System operation consumptive use from Table 20

Table 21: IID Historic and Forecasted Consumptive Use vs CRWDA Exhibit B IID Net Available Consumptive Use, volumes at Imperial Dam (KAFY), 2015-2055-

	2015	2020	2025	2030	2035	2040	2045	2050	2055
Non-Ag Delivery	**110.1**	123.4	133.1	142.9	151.4	163.2	175.4	188.4	199.3
Ag Delivery	**2,156.8**	2,309.6	2,259.5	2,209.5	2,209.5	2,209.5	2,209.5	2,209.5	2,209.5
QSA SS Mitigation Delivery	**153.3**	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
System Op CU in IID & to Imperial Dam	**220.2**	**235.6**	**230.5**	**225.4**	**225.4**	**225.4**	**225.4**	**225.4**	**225.4**
IID CU at Imperial Dam	**2,480.9**	2,668.6	2,623.1	2,577.8	2,586.3	2,598.1	2,610.3	2,623.3	2,634.2
Exhibit B IID Net Available for CU at Imperial Dam	**2,480.9**	**2,649.8**	**2,617.8**	**2,612.8**	**2,612.8**	**2,612.8**	**2,612.8**	**2,665.8**	**2,665.8**
IID Underrun/Overrun at Imperial Dam	**90.0**	-18.80	-5.30	35.00	26.50	14.70	2.50	42.50	31.60

Notes: 2015 Provisional Water Balance rerun 06/28/2019
Non-Ag Delivery CI 15.0%, Ag Delivery CI 3.0%, QSA SS mitigation CI 15%
QSA Salton Sea Mitigation Delivery terminates on 12/31/2017
Underrun /Overrun = IID CU at Imperial Dam minus CRWDA Exhibit B Net Available
Notes: Ag Delivery for 2020-2055 does not take into account land conversion for solar use nor reduction in agricultural land area due to urban expansion.

As shown above, IID forecasted demand has the potential to exceed CRWDA Exhibit B Net Consumptive Use volumes during several time intervals through the lifespan projection for the Project. However, due to temporary land conversion for solar use and urban land expansion that will reduce agricultural acres in the future, a water savings of approximately 217,000 AFY will be generated into the future and for the lifetime of the Project.

In addition, USBR 2019 Decree Accounting Report states that IID Consumptive Use is 2,558.1 KAF (excludes 46,555 AF for water transfer associated with Salton Sea mitigation and 1,579 AF of ICS for storage in Lake Mead) with an underrun of -34.2 KAF, as reported by IID in 2019 Annual SWRCB Report per WRO 2002-2013; that is, IID uses less than the amount in its approved Water Order (2,629,675 AF).

Table 22: 2019 Approved Water Order, Actual CU (Decree Accounting Report) and IID Underrun, KAF at Imperial Dam

IID Approved Water Order	2,639.7 less 10 supplied by LCWSP
IID Consumptive Use	2,558.1
IID **Underrun /Overrun**	**-34,215**
Sources: 2019 IID Revised Water Order, approved on March 10, 2020, *2019 Decree Accounting Report*, and *2019 Annual Report of IID Pursuant to SWRCB Revised Order WRO 2002-2013*	

As reported in the 2017-2018 IID QSA Implementation Report and 2019 SWRCB IID Report and presented in Table 20 from 2013 to 2019 IID consumptive use (CU) resulted in underruns; i.e., annual CU was less than the district's QSA Entitlement of 3.1 MAFY minus QSA/Transfer Agreements obligations. This would indicate that even though Table 10 shows IID Overrun/Underrun at Imperial Dam exceeding CRWDA Exhibit B Net Available for CU, for the 30-year life of the proposed Project, IID consumptive use may be less than forecasted. However, with repeal of the IID EDP in February 2018, it is uncertain whether underruns will continue.

Meanwhile, forecasted Ag Delivery reductions presented in Table 9 are premised on implementation of on-farm practices that will result in efficiency conservation. These reductions do not take into account land conversion for solar projects nor reduction in agricultural land area due to urban expansion; that is to say, the forecasted Ag Delivery is for acreage in 2003 with reduction for projected on-farm conservation efficiency. Thus, Ag Delivery demand may well be less than forecasted in Table 9. In any case, the proposed Project will use less water than the historical agricultural demand of proposed Project site, so the proposed Project will ease rather than exacerbate overall IID water demands.

In the event that IID has issued water supply agreements that exhaust the 25 KAFY IWSP set aside, and it becomes apparent that IID delivery demands due to non-agriculture use are going to cause the district to exceed its quantified 3.1 MAFY entitlement less QSA/Transfer Agreements obligations, IID has identified options to meet these new non-agricultural demands. These options include (1) tracking water yield from temporary land conversion from agricultural to non-

agricultural land uses (renewable solar energy); and (2) only if necessary, developing projects to expand the size of the district's water supply portfolio.

These factors will be discussed in the next two sections, **Tracking Water Savings from Growth of Non-Agricultural land Uses** and **Expanding Water Supply Portfolio.**

Tracking Water Savings from Growth of Non-Agricultural Land Uses

The Imperial County Board of Supervisors has targeted up to 25,000 acres of agricultural lands, about 5 percent (5%) of the farmable acreage served by IID, for temporary conversion to solar farms; because the board found that this level of reduction would not adversely affect agricultural production. As reported for IID's 2019 Temporary Land Conversion Fallowing Program existing solar developments at the end of 2019 have converted 10,146 acres of farmland. These projects had a yield at-river of 65,791 AF of water in 2019. The balance of the 25,000-acre agriculture-to-solar policy is 14,854 acres. On average, each agricultural acre converted reduces agricultural demand by 5.1 AFY, which results in a total at-river yield (reduction in consumptive use) of 127,500 AFY.

However, due to the nature of the conditional use permits under which solar farms are developed, IID cannot rely on this supply being permanently available. In fact, should a solar project decommission early, that land may go immediately back to agricultural use (it remains zoned an agricultural land). Nevertheless, during their operation, the solar farms do ameliorate pressure on IID to implement projects to meet demand from new non-agricultural projects.

Unlike the impact of solar projects, other non-agricultural uses are projected to grow, as reflected in the nearly 76 percent (76%) increase in non-agricultural water demand from 107.2 KAF in 2015 to 198.4 KAF in 2055 reflected herein in **Table 8**. This increase in demand of 91.2 KAFY will more than likely be met by solar development; however, as the land remains zoned as agricultural land, that source is not reliable to be permanently available to IID.

The amount of land developed for residential, commercial, and industrial purposes is projected to grow by 55,733 acres from 2015 to 2050[13] within the sphere of influence of the incorporated cities and specific plan areas in Imperial County. A conservative estimate is that such development will displace at least another 24,500 acres of farmland based on the Imperial County Local Agency Formation Commission (LAFCO) sphere of influence maps and existing zoning and land use in Imperial County. At 5.13 AFY yield at-river, there would be a 125,000 AFY reduction IID net consumptive use.

The total foreseeable solar project temporary yield at-river (91,800 AFY) and municipal development permanent yield at-river (125,000 AFY) is to reduce forecasted IID net consumptive use at-river 216,800 AFY, which is more than enough to meet the forecast Demand minus Exhibit B Net Available volumes shown in Table 14. This Yield at-river is sufficient to meet the forecasted excess of non-agricultural use over Net Available supply within the IID service area for the next 20 years, as is required for SB 610 analysis.

Farmland retirement associated with municipal development would reduce IID agricultural delivery requirements beyond the efficiency conservation projections shown in **Table 9.** Therefore, in the event that Schedule 7 General Industrial Use water is unavailable, the Applicants will rely on IID IWSP water to supply the Project, as discussed above in the section **IID Water Supply Policy for Non-Agricultural Projects (September 2009).**

EXPANDING WATER SUPPLY PORTFOLIO

While forecasted long-term annual yield-at-river from the reduction in agricultural acreage due to municipal development in the IID service area is sufficient to meet the forecasted excess of non-agricultural use over CRWDA Net Available supply (**Table 14)** without expanding IID's Water Supply Portfolio, IID has also evaluated the feasibility of a number of capital projects to increase its water supply portfolio.

[13] IRWMP, Chapter 5, Table 5-14.

As reported in 2012 Imperial IRWMP Chapter 12, IID contracted with GEI Consultants, Inc. to identify a range of capital project alternatives that the district could implement. Qualitative and quantitative screening criteria and assumptions were developed in consultation with IID staff. Locations within the IID water service area with physical, geographical, and environmental characteristics most suited to implementing short- and long-term alternatives were identified. Technical project evaluation criteria included volumes of water that could be delivered and/or stored by each project, regulatory and permitting complexity, preliminary engineering components, land use requirements, and costs.

After preliminary evaluation, a total of 27 projects were configured:

- 17 groundwater or drain water desalination
- 2 groundwater blending
- 6 recycled water
- 1 groundwater banking
- 1 IID system conservation (concrete lining)

Projects were assessed at a reconnaissance level to allow for comparison of project costs. IID staff and the board identified key factors to categorize project alternatives and establish priorities. Lower priority projects were less feasible due to technical, political, or financial constraints. Preferential criteria were features that increased the relative benefits of a project and grant it a higher priority. Four criteria were used to prioritize the IID capital projects:

1. **Financial Feasibility.** Projects whose unit cost was more than $600/AF were eliminated from further consideration.
2. **Annual Yield.** Project alternatives generating 5,000 AF or less of total annual yield were determined not to be cost-effective and lacking necessary economies of scale.

3. Groundwater Banking. Groundwater banking to capture and store underruns is recognized as a beneficial use of Colorado River water. Project alternatives without groundwater banking were given a lower priority.
4. Partnering. Project alternatives in which IID was dependent on others (private and/or public agencies) for implementation were considered to have a lower priority in the IID review; this criterion was reserved for the IRWMP process, where partnering is a desirable attribute.

Based on these criteria, the top ten included six desalination, two groundwater blending, one system conservation, and one groundwater storage capital projects. These capital projects are listed Table 23 which follows.

Table 23 IID Capital Project Alternatives and Cost (May 2009 price levels $)

Name	Description	Capital Cost	O&M Cost	Equivalent Annual Cost	Unit Cost ($/AF)	In-Valley Yield (AF)
GW 18	Groundwater Blending E. Mesa Well Field Pumping to AAC	$39,501,517	$198,000	$2,482,000	$99	25,000
GW 19	Groundwater Blending: E. Mesa Well Field Pumping to AAC w/Percolation Ponds	$48,605,551	$243,000	$3,054,000	$122	25,000
WB 1	Coachella Valley Groundwater Storage	$92,200,000	$7,544,000	$5,736,746	$266	50,000
DES 8	E. Brawley Desalination with Well Field and Groundwater Recharge	$100,991,177	$6,166,000	$12,006,000	$480	25,000
AWC 1	IID System Conservation Projects	$56,225,000	N/A	$4,068,000	$504	8,000
DES 12	East Mesa Desalination with Well Field and Groundwater Recharge	$112,318,224	$6,336,000	$12,831,000	$513	25,000
DES 4	Keystone Desalination with IID Drainwater/ Alamo River	$147,437,743	$15,323,901	$23,849,901	$477	50,000
DES 14	So. Salton Sea Desalination with Alamo River Water and Industrial Distribution	$158,619,378	$15,491,901	$24,664,901	$493	50,000

DES 15	So. Salton Sea Desalination with Alamo River Water and MCI Distribution	$182,975,327	$15,857,901	$26,438,901	$529	50,000
DES 2	Keystone Desalination with Well Field and Groundwater Recharge	$282,399,468	$13,158,000	$29,489,000	$590	50,000

Source: Imperial IRWMP, Chapter 12; see also Imperial IRWMP Appendix N, IID Capital Projects

IID Near Term Water Supply Projections

As mentioned above, IID's quantified Priority 3(a) water right under the QSA/Transfer Agreements secures 3.1 MAF per year, less transfer obligations of water for IID's use from the Colorado River, without relying on rainfall in the IID service area. Even with this strong entitlement to water, IID actively promotes on-farm efficiency conservation and is implementing system efficiency conservation measures including seepage recovery from IID canals and the All-American Canal (ACC) and measures to reduce operational discharge. As the IID website Water Department states:

> Through the implementation of extraordinary conservation projects, the development of innovative efficiency measures and the utilization of progressive management tools, the IID Water Department is working to ensure both the long-term viability of agriculture and the continued protection of water resources within its service area.

Overall, agricultural water demand in the Imperial Valley will decrease due to IID system and grower on-farm efficiency conservation measures that are designed to maintain agricultural productivity at pre-QSA levels while producing sufficient yield-at-river to meet IID's QSA/Transfer Agreements obligations. These efficiencies combined with the conversion of some agricultural land uses to non-agricultural land uses (both solar and municipal), ensure that IID can continue to meet the water delivery demand of its existing and future agricultural and non-agricultural water users, including this Project for the next 30 years and for the life of the proposed Project.

PUBLIC WATER SYSTEM/ LEAD AGENCY FINDINGS

IID serves as the regional wholesale water supplier, importing raw Colorado River water and delivering it, untreated, to agricultural, municipal, industrial, environmental, and recreational water users within its Imperial Unit water service area. The County of Imperial serves as the responsible agency with land use authority over the proposed project. Water Assessment findings are summarized as follows:

1. IID's annual entitlement to consumptive use of Colorado River water is capped at 3.1 MAF less water transfer obligations, pursuant to the QSA and Related Agreements. Under the terms of the CRWDA, IID is implementing efficiency conservation measure to reduce net consumptive use of Colorado River water needed to meet its QSA/Transfer Agreements obligations while retaining historical levels of agricultural productivity.
2. In 2019 IID consumptively used 2,588,136 AF of Colorado River water (volume at Imperial Dam); 2,315,988 AF were delivered to customers of which 2,225,089 AF or 96 percent went to agricultural users.
3. Reduction of IID's net consumptive use of Colorado River water under the terms of the Colorado River Water Delivery Agreement is to be the result of efficiency conservation measures. Agricultural consumptive use in the Imperial Valley will not decline. However, IID operational spill and tailwater will decline, impacting the Salton Sea.
4. Due to the dependability of IID's water rights, Colorado River flows, and Colorado River storage facilities for Colorado River water, it is unlikely that the water supply of IID would be disrupted, even in dry years or under shortage conditions because Mexico, Arizona and Nevada have lower priority and are responsible for reducing their water use during a declared Colorado River water shortage before impacting California.
5. Historically, IID has never been denied the right to use the annual volume of water it has available for its consumptive uses under its entitlement. Nevertheless, IID is participating in discussions for possible actions in response to extreme drought on the Colorado River.
6. The proposed Project has an estimated total water demand of 112 AF for a duration of 2 years during construction and 102,000 AF or 3,400 AFY amortized over a 30-year term (for

all delivery gates for proposed Project). Thus, the proposed Project demand is a an increase of 2,273 AFY from the historical 10-year average, or 202% more than the historical 10-year average annual delivery of 1,127 AF of historic water use at the proposed Project Site.

7. The Project's water use will be covered under the Schedule 7 General Industrial Use. In the event that IID determines that the proposed Project is to utilize IWSP for Non-Agricultural Projects water, the Applicant will enter into an IWSP Water Supply Agreement with IID. In which case, the proposed Project would use 14 percent (14%) of the 23,800 AFY of IWSP water.
8. Based on the Environmental Impact Report (EIR) prepared for this proposed Project pursuant to the CEQA, California Public Resources Code sections 21000, *et seq*., the Lead Agency hereby finds that the IID projected water supply will be sufficient to satisfy the demands of this proposed Project in addition to existing and planned future uses, including agricultural and non-agricultural uses for a 30-year Water Supply Assessment period and for the 30 -year proposed Project life with a 2 year construction water consumption life. California State Clearing House Number: 2020120143

ASSESSMENT CONCLUSION

This Water Supply Assessment has determined that IID water supply is adequate for ES Minerals, the proposed Project. The Imperial Irrigation District's IWSP for Non-Agricultural Projects dedicates 25,000 AF of IID's annual water supply to serve new projects. As of June 2020, 23,800 AF per year remain available for new projects ensuring reasonably sufficient supplies for new non-agricultural water users. The project water demand of approximately 102,000 AF and 3,400 AFY amortized represents 14 % of the unallocated supply set aside in the IWSP for non-agricultural project, and approximately (14%) of forecasted future non-agricultural water demands planned in the Imperial IRWMP through 2055. The water demand for the Project is an increase in the overall historic demand for the project site.

For all the reasons described herein, the amount of water available and the stability of the IID water supply along with on-farm and system efficiency conservation and other measures being undertaken by IID and its customers ensure that ES Mineral 's water needs will be met for the next 30 years as assessed for compliance under SB-610.

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ATTACHMENTS

Attachments

Attachment A: IID Interim Water Supply Policy for Non-Agricultural Projects

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Attachment A: IID Interim Water Supply Policy for Non-Agricultural Projects[13]

1.0 Purpose.

Imperial Irrigation District (the District) is developing an Integrated Water Resources Management Plan (IWRMP) [14] that will identify and recommend potential programs and projects to develop new water supplies and new storage, enhance the reliability of existing supplies, and provide more flexibility for District water department operations, all in order to maintain service levels within the District's existing water service area. The first phase of the IWRMP is scheduled to be completed by the end of 2009 and will identify potential projects, implementation strategies and funding sources. Pending development of the IWRMP, the District is adopting this Interim Water Supply Policy (IWSP) for Non-Agricultural Projects, as defined below, in order to address proposed projects that will rely upon a water supply from the District during the time that the IWRMP is still under development. It is anticipated that this IWSP will be modified and/or superseded to take into consideration policies and data developed by the IWRMP.

2.0 Background.

The IWRMP will enable the District to more effectively manage existing water supplies and to maximize the District's ability to store or create water when the available water supplies exceed the demand for such water. The stored water can be made available for later use when there is a higher water demand. Based upon known pending requests to the District for water supply assessments/verifications and pending applications to the County of Imperial for various Non-Agricultural Projects, the District currently estimates that up to 50,000 acre feet per year (AFY) of water could potentially be requested for Non-Agricultural Projects over the next ten to twenty years. Under the IWRMP the District shall evaluate the projected water demand of such projects and the potential means of supplying that amount of water. This IWSP currently designates up to 25,000 AFY of water for potential Non-Agricultural Projects within IID's water service area. Proposed Non-Agricultural projects may be required to pay a Reservation Fee, further described below. The reserved water shall be available for other users until such Non-Agricultural projects are implemented and require the reserved water supply. This IWSP shall remain in effect pending the approval of further policies that will be adopted in association with the IWRMP.