IMPERIAL IRWMP
INTEGRATED REGIONAL WATER MANAGEMENT PLAN

Appendix R

Public Comments to Imperial IRWMP Public Review Draft of July 2012

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Commenter Contact Information:

Below is a list of agencies and contacts that provided comments on the July 2012 Public Draft of the Imperial IRWMP:

Agency:	California Department of Public Health (CDPH)
Contact:	Erica Wolski
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Agency:	(EH)
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ID No.	Subject Matter (and Page, if provided)	Commenter	Comment	Response
1	Use of Recycled Water ▪ Section 7.2.1.1	CDPH	If municipal recycled water is added to an Imperial Irrigation District (IID) canal, public Water systems would no longer be able to use that canal for public water supply. This includes canals downstream of the canal to which it is fed. For example, if recycled water was added to the Rockwood Canal, this would also preclude water systems from using the Vail Supply Canal. This may require some smaller water systems and residential pipe accounts to change to a different canal for raw water, which may not be feasible. Also it would effectively preclude new services for small water systems to be added to that canal, and its downstream canals, in the future.	Comment noted. Added footnote to section.
2	Use of Surface Water Desalination and CDPH Permitting ▪ No specific Section	CDPH	[Projects involving] desalting either Alamo River water and/or IID drain water and sending the treated water to the Fudge Reservoir and then to Rockwood Canal. Both sources of water would fall under CDPH's "extremely impaired source" definition. If the treatment and monitoring for the raw and treated water are sufficient, there may be no additional requirements by CDPH put on the downstream users. However, if treatment and monitoring is not considered sufficient at the desalination plant, this will either preclude downstream municipal and residential users from using the canal or CDPH will require the additional treatment to be installed and the additional monitoring to be completed at each downstream public water supply intake.	Comment noted. No change needed.
3	Use of Ground-Water Desalination and CDPH Permitting ▪ Table 12-5. IID Capital Projects	CDPH	Project No. 7 "East Brawley 25 KAFY Desalination with Well Field and Groundwater Recharge", listed in Appendix N under Section N.1.2.12, and involves desalting groundwater in the eastern portion of the valley and sending the treated water to the East Highline Canal. If the treatment and monitoring for the raw and treated water are sufficient, there may be no additional requirements by CDPH put on the downstream users. However, if treatment and monitoring is not considered sufficient at the desalination plant, CDPH will require the additional treatment to be installed and the additional monitoring to be completed at each downstream public water supply intake.	Comment noted. No change needed.
4	Document Change ▪ Acronym Section	EH	[Municipal, Commercial, and Industrial (MCI), and Supply Demand Imbalance (SDI)] need to be defined early on, even before the	Comment noted. Acronym list

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			Summary, rather than waiting to p. 48 of pdf file.	immediately precedes TOC.
5	Document Changes ▪ Acronym Section	EH	Suggest a list of acronyms early in the doc so reader can have list at side when encountering acronyms or forgetting what they mean.	Comment noted. Acronym list immediately precedes TOC.
6	Document Changes ▪ Page 19 Exec Summary	EH	to be exceed**ed** available	Comment noted. Changed to: "…to its customers should demand be anticipated to exceed available supply."
7	Recommendation ▪ Page 88 Chapter 3	EH	Add a relevant element of the Imperial County General Plan as the Land Use Element (the community area plans are a part of the Land Use Element).	Commented noted. Added reference to County General Plan Goals and Objectives of their Land Use Element.
8	Groundwater Management ▪ Page 94 Section 2.6, 3.1.2	EH	To the best of my knowledge, the County has not implemented its groundwater management ordinance since it was adopted, except to grant a special entitlement to USG by the Planning Director without compliance with the ordinance.	Comment noted. Added as footnote to Section 3.1.2. "In 2006 USG petitioned LAFCO and IID for 'inclusion' into the IID Imperial Unit, which essentially grants them eligibility to receive water from IID. There was a 1000 AF limit put on the water to be made available, but USG has yet to install the delivery facility necessary to receive flows from IID."
9	Document Changes ▪ Page 113 Figure 4-1	EH	Figure 4.1 Add to legend to explain the thin blue lines, which are either N-S or W-E. Are they lateral canals or drainage?	Comment noted. Legend has been modified.
10	Document Changes ▪ Section 4	EH	A map showing location of IID reservoirs would be interesting in understanding how Colorado River supplies are managed per text on page 115	Comment noted. Note web links found in Table 4-4.
11	El Centro Replacement Tank ▪ Page 122 Section 4.1.4.3	EH	Please update info on El Centro replacement tank which was supposed to be done by July 2011, Is work completed?	Comment noted. Changed to: *"The 5 million gallon tank that was damaged in the April 2010 earthquake has been repaired. The overflow line was lowered which reduced its capacity to 4 million gallons. A replacement tank was never*

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				considered since the damage was not total. There are plans to construct two new 5 million gallon tanks within the city. One at the water treatment plant and one at the La Brucherie pump station."
12	Project Status Terminology ▪ Page 122 Section 4.1.4.4	EH	No longer acceptable to say "status unknown" for any city infrastructure project identified as supposed to be completed in 2011.	Comment noted. Changed to: *"This study was completed in May 2011."*
13	▪ Page 128 Section 4.1.5.3	EH	What about an update for EC from 2009?	Comment noted. *"A Capital Improvement Plan has been completed, but has not been adopted."*
14	Groundwater Characterization ▪ Page 151 Section 4.3.3.1 Section 5.3.2	EH	"The groundwater aquifer in the Ocotillo/Coyote Wells Subbasin is unconfined, with a saturated thickness of approximately 400 feet and an average depth-to groundwater of approximately 100 feet." Statement is not accurate, is misleading. Depth ranges from 30 ft in eastern part of Nomirage to more than 300 ft to the west and about 140 ft in Ocotillo and closer to depth of 180 ft below mean sea level in Yuha Estates area where my well is a USGS monitoring well.	Comment noted. Description changed to align with the CDWR Colorado River Hydrologic Region for Coyote Wells Valley Groundwater Basin as part of Bulletin 118. http://www.water.ca.gov/pubs/groundwater/bulletin_118/basindescriptions/7-29.pdf
15	Groundwater Characterization ▪ Section 4.3.3.1 Section 5.3.2	EH	Transmissivity rates have been overestimated, and with the exception of a few locations, every attempt to pump more than about 100 AF/Y from an individual well has created drawdown in nearby wells and in down gradient wells.	See Comment 14.
16	Groundwater Characterization ▪ Section 4.3.3.1	EH	Underlying geology is a critical issue for both water levels and water quality in the Ocotillo-Coyote Wells basin, with some domestic wells having non-potable water. Ask me for more details and USGS monitoring data if you want, but that is why there has been almost continuous litigation related to groundwater extraction for export to Mexico and USG/Plaster City ever since the early 1970s. See Table 10 and graphs attached to email transmission.	Comment noted. Inserted in Section 4.3.3.1

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17	Groundwater Characterization ▪ Page 152 Section 4.3.3.2	EH	"West Mesa groundwater is derived from recent precipitation that has not yet reached the more saline deposits of the central part of the valley and may contain a TDS concentration of only a few hundred milligrams per liter." Overly optimistic estimation of GW quality in Ocotillo basin. It ranges from about high quality of 300 ppm TDS to non-potable with over 2000 ppm to even up to 6,000 ppm in some wells in the Nomirage area because wells are drilled into old marine or brackish deposits along the northern side of the Jacumba Mts. It is this kind of overly optimistic assumption that makes for problems in planning and development. (Earlier I submitted my 15 page Table 10 which is a compilation of all relevant USGS GW monitoring data for the basin.) Years ago I learned that this is likely overly optimistic for portions of the West Mesa aquifer that have surface discharge to the Fish Creek San Sebastian march also. There were a number of lawsuits related to the proposed Allegretti groundwater uses.	Comment noted. For Table 10 referenced in Comment ID Nos. 17, 22 and 23, see page 17, et seq., below. Text added to Section 4.3.3.2.
18	Earthquake Faults ▪ Page 153 Figure 4-10	EH	Please add location of Elsinore-Laguna Salada Fault because they represent the eastern/northern boundary of the potable of the Ocotillo Coyote Wells Basin vs. highly saline groundwater to the east of the fault, where TDS is in range of 12,000 to 54,000ppm.	Comment noted. Elsinore-Laguna Salada Fault lines are outside the bounds of Figure 4-10 (majority in Mexico). No action taken. http://geohazards.usgs.gov/qfaults/map.php
19	Groundwater Recharge ▪ Page 158 Section 4.3.3.3	EH	John Izbicki, PhD of USGS Water Resources Center in SD estimates that there is essentially NO recharge to the Ocotillo basin. He reminds me that there must be standing water long enough to percolate down through 30 to 200-300 ft of dry soil for any recharge to be occur or be measurable. Since the floods and standing water of 100 year floods (3 since 1976) there has been no measured increase in water wells to the west of the Laguna Salada Fault. USGS disagrees with an asserted recharge of 800 AF/Y. Also See FN 1 at p 282 which confirms USGS belief.) Water levels are declining except where domestic wells are still recovering from the decline that accompanied 5 years of export from the Yuha McDougal well when water level of the pumping well declined about 70 ft and in my downgradient well 30 ft decline. Export stopped in 1982, likely because pumping was beginning up saline water from depth.	Comment noted. No action taken given language pertaining to estimates is based on published efforts that are conservative in the amount of recharge occurring.

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20	Endangered Species ▪ Page 161 Section 4.3	EH	Why no mention of special status and listed endangered species of lizards and mammals? Peninsular Big-Horn Sheep is listed as endangered and Flat-tailed Horned lizard is a special status species that the Fish and Wildlife Service earlier proposed for listing as a threatened species.	Comment Noted. A list of species is presented in Section 4.3 based on available literature. Additional assessment will be done at the project level and not at IRWMP stage.
21	Environmental (Gas Emissions ▪ Page 162 Section 4.3.7	EH	"Biogenic sources (i.e., vegetation— including trees, plants, and crops—and soils) that release naturally occurring emissions accounted for most of the VOC emissions (about 94 percent) and secondarily contributed to CO emissions (about 35 percent)." Is that true? If so what is the source of such numerical information????? I am guessing there is some error in the VOC percentage that is biogenic.	Comment noted. It is likely that the percentage would vary depending on location. Percentage values have been removed.
22	Groundwater Data ▪ Page 190 Section 5.3.2	EH	Re Sec. 5.3.2 Rather than just relying on data for the groundwater basin in studies paid for by US Gypsum, I am including Table 10 that included USGS groundwater monitoring and data collected by USGS on wells, locations and water level and water quality. This table has been continually updated and submitted at every relevant proceeding/NEPA/CEQA review document related to the Ocotillo Coyote Wells Groundwater basin. Raw monitoring data clearly shows well interference esp. in the southern portion of the basin, as well as overdraft. USGS internet data sites are listed at the end of Table 10.	Comment noted. For Table 10 referenced in Comment ID Nos. 17, 22 and 23, see page 17, et seq., below Recommend as a follow-up study, if needed for project implementation.. No change in the IRWMP.
23	Groundwater ▪ Page 191 Section 5.3.2	EH	Average depth to water is way off and fails to consider surface topography and declining water levels due to overdraft. See Table 10 and the graph of static water levels in wells prepared in response to USG FEIR/S and for Wind Zero EIR documents.	Comment noted. For Table 10 referenced in Comment ID Nos. 17, 22 and 23, see page 17, et seq., below. Recommend as a follow-up study, if needed for project implementation. No change in the IRWMP.
24	Geothermal Energy Sites ▪ Page 204	EH	"Geothermal energy generation cannot be considered as a separate alternative for creating new water since there are no geothermal plants operating in the region." This statement is factually wrong!	Comment Noted. Changed to: *"Geothermal energy generation cannot be considered as a separate alternative*

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	Section 5.6		Please correct it with updated info about status of geothermal operations both ongoing and approved.	*for reducing water use."*
25	Solar Voltaic ▪ Page 205 Section 5.7	EH	"solar voltaic development" should say solar photovoltaic	Comment noted. Text changed throughout IRWMP.
26	Population Estimates ▪ Page 210 Section 5.7.4	EH	Population estimated for Ocotillo area is seriously in error. The population is now smaller than when I moved here 35 years ago and more homes than ever are now for sale as community is being seriously disrupted by Ocotillo wind turbine project. Many homes are falling down or waiting for demolition, and new for-sale signs keep appearing. Do not expect much new construction unless wind turbine construction is halted and turbines removed. Recent census figures were told to me to be 260 people not the 600 plus of the table. Just because the land is zoned for residential development does not mean that anyone would consider it to be a desirable area to build a home now! Wind turbines are devaluing property and the whole community may become essentially abandoned if Ocotillo and Nomirage residents start experiencing the same health impacts of industrial wind experiences elsewhere such as near the Campo turbines and elsewhere in US, Australia and Europe. Elsewhere impacted residents have had to abandon their homes to regain their health. People feel very threatened by County approval of the wind project and earlier its approval of the Wind Zero "Blackwater-style" training facility immediately adjacent to the residential community of Nomirage. Residents repeatedly ask why the County seems to dislike the communities of Ocotillo and Nomirage so much. Lawsuits have been the only recourse when decision-makers refuse to make decisions that leave residents feeling safe in their homes. Based on experiences elsewhere, construction of the wind turbines and other industrial scale energy proposals have likely effectively precluded future residential development on the vast majority of private land overlying the groundwater basin.	Commented noted. Population changed to 268 based on 2010 Census. Table changed with same increment of change into the future. http://censusviewer.com/city/CA/Ocotillo
27	Use Permits ▪ Page 212 Section 5.7.6, Page 5-46	EH	"Outside of the Imperial Valley there is one Specific Plan that has received a Conditional Use Permit: Coyote Wells/Wind Zero Specific Plan, which includes 943 acres." Please note that the County approval was followed by 2 lawsuits, the property went into foreclosure for a 3rd time, applicant failed to pay taxes of for county attorneys to defend his approvals in Court, property was sold at auction and	Comment noted. No change needed.

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			reverted to original owner who wanted original zoning reinstated and all County approvals vacated. Board has officially vacated approvals and Zoning has reverted to desert residential, not much likelihood of development in the floodway portions of the property. The only jobs created were jobs for 3 attorneys, none of whom were residents of Imperial County. So please remove any reference to the County approvals of the CWSP project, it was a disaster from beginning to end and the County lost out in the long run from this planning, environmental and environmental justice fiasco.	
28	Groundwater Use ▪ Page 223 Page 5-27 Section 5.9.1	EH	"U.S. Gypsum Company, working in West Mesa estimates a baseline groundwater demand of 767 AFY (0.68 MGD" However, the Court of appeals found that there was no basis for that figure based on pumpage or production, just an inflated number that is still the subject of litigation. USG is supposed to be getting Colorado River water from the Westside Main Canal per an approval by IID many years ago, paperwork that is part of the litigation files, litigation continuing. IID approved "up to 1,000 AF/Y to go to US Gypsum at Plaster City and an act of Congress in 1981 approved extending the IID boundary to include an industrial project at Plaster City to get it off groundwater. (See IRWMP pdf at p 285 for confirmation citation.)	Comment noted. Through IID Board resolution, IID is authorized to contract for this water (and LAFCO inclusion process), but until they build a pipeline this water cannot be put to use.
29	Rainfall Info ▪ Page 249 Table 5-59	EH	What is all the info about rainfall about? That needs some text explanation. Rainfall is so highly variable; it can be a couple of inches in an hour in one location and nothing ½ mile away. As has happened at my home this summer. Even in the desert of West Mesa heavy rainfall and flooding have not resulted in any changes in water availability or groundwater levels, just flooding damage.	Comment noted. This discussion is located throughout Chapter 5 and provides sufficient content regarding variability of rainfall over the year.
30	Evaporation Rates ▪ Page 268 and 417 Section 6.4.6	EH	"evaporative rates are eight feet (84 inches) per year" Eight feet is 96 inches not 84.) I believe this figure is incorrect. Many years ago I learned from govt docs that the "pan evaporation rate" for Imperial County is about 100 inches/year. Please verify a source and insert correct information.	Comment noted. Sentence changed based on finding multiple sources with differing values for region. "Furthermore, evaporative rates in some portions of the region are upwards of eight feet per year, environmental constraints are great, and political opposition would be strong."

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31	Groundwater Monitoring ▪ Page 293 Section 7.1.2.2.3	EH	"The County does not have groundwater monitoring records" However, all USGS monitoring data for wells in Imperial County is available at the USGS websites and available to everyone. USGS monitoring data was updated for my Table 10 on Easter 2012. County ignores monitoring data because it tells much about the status of the Sole Source Aquifer. I only make tables from the West Mesa data because I am a, Ocotillo basin groundwater user not reliant on IID's Colorado River water. If I can find the water monitoring data (levels and quality) so can the County if it is interested! The monitoring program is jointly funded by County and USGS.	Comment noted. Added a sentence to end of section. Much of the USGS monitoring data for wells in Imperial County is available at the USGS websites.
32	Groundwater Study ▪ Page 294 Section 7.1.2.2.4	EH	Original groundwater study for the Ocotillo-Coyote Wells basin was done by USGS in 1977 a joint effort for funding-County and USGS because County needed info for groundwater related litigation in both Ocotillo and Yuha. The Bookman-Edmonston study was funded by US Gypsum, with an industrial use bias to minimize export impacts for non-overlying uses.	Comment noted. See footnote 3 on page 7-8, and 3rd bullet from bottom in Section 7.1.2.2.4. Changed to: "the Ocotillo-Coyote Wells study by USGS for IC/USGS and the groundwater study by Bookman-Edmonston for US Gypsum."
33	▪ Page 311	EH	"Artificial snow making" Suggest this be omitted as irrelevant in IRWMP area.	Comment noted. No change to state table of regulations.
34	Floodwaters and this Year's Floods ▪ Chapter 9	EH	Chapt 9 Floodwater Mgmt is interesting and of great need as the flood channel and drainage disaster that is unfolding on public lands being dozed and graded altering natural drainage patterns to the west of Ocotillo for the Ocotillo Wind project. Already this summer there has been heavy flooding in places not flooded before because drainages have been so altered. The future will be a disaster for all down gradient lands if the Court does not issue an injunction for one or more of the five lawsuits (4 in Federal Court and one in Superior Court. Another court hearing on 9-14-2012. Mandatory studies were not completed prior to project approval and start of construction!)	Comment noted. No change needed.
35	Development in Floodways ▪ Page 394 Section 9.1	EH	County and federal decision-makers need the courage and will-power to make the tough decisions and sometimes "just say no" to development proposals in floodways and flood plains. Some disasters can be minimized or eliminated through appropriate zoning, planning	Comment noted. No change needed.

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			and engineering. There must be some criteria for which there are no exceptions no matter what the promises of increased taxes or jobs.	
36	Ag Fallowing ▪ Page 434/435 Chapter 11 in general	EH	Does anyone really believe that ag land removed from ag usage and for industrial scale PV will ever revert to agricultural uses after 20 to 30 years?	Comment noted. No change needed.
37	Photovoltaic Facilities ▪ Page 476 Section 12.1.4	EH	IRWMP states: "The County plans to issue conditional use permits (CUP) to allow solar photovoltaic facilities consistent with agricultural zoning. This will result in long-term, temporary fallowing will reduce water use for the duration of the CUP, and free- up the conserved water that can then be apportioned by IID to other purposes, including new non-agricultural uses within IID, environmental mitigation and/or transfer. IID has developed a Temporary Land Conversion Fallowing Policy. Development of the policy and coordinating it with the other IID policies and programs could take time and delay stakeholder adoption of the Imperial IRWMP." No matter how much I read, I find the Temporary Land Conversion Fallowing program for PV to be very, very troubling in the long run. Will the land ever be able to physically/financially be returned to agriculture, and if water has been allocated for other uses for 20-30 years, what will be the response to those uses suddenly be expected to have to give up or reduce their water use? This program makes NO sense in light of the reduced water availability for the future that is a theme throughout the IRWMP.	Comment noted. Addressed with changes to text for Section 12.1.4
37a	Ag Fallowing Program ▪ Page 477 Section 12.1.5.1	EH	"conserved from fallowing is set by IID and solicitations are sent out asking for voluntary participation to fallow a field in return for payment of the conserved water. Fields are then contracted based on a random selection to meet the amount of conserved water needed each year. Each field's participation in the fallowing program is limited to two out of every four years." IID's fallowing program seems so much more sensible and equitable, and in the long terms best interests of both the agricultural community, farm workers and the	Comment noted. No change needed.

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			general public, and with fewer long-term adverse consequences for future water uses. The IID fallowing program seems better thought out and fairer to all concerned, both now and in the future.	
38	Fallowing ▪ Page 482 Section 12.1.5.1	EH	Even after reading the text related details of fallowing, why is it that I can feel comfortable with the IID temporary land fallowing details spelled out in the document of May 2012, but remain so very concerned about the County approvals related to conversion of ag land for solar with a proviso that decades later land revert to agriculture? I tried really hard to understand the County decisions, but still feel very uncomfortable with the conversion to solar PV provisions. Is there something I am missing?	Comment noted. No change needed.
39	IID Related and Conversion to Photovoltaic ▪ Page 485 Section 12.2	EH	IID is a responsible public agency with jurisdiction by law and has the necessary power and authority to review and approve changes in the place or type of water use of IID's Colorado River entitlement that would occur as a result of any land use decisions by Imperial County or the incorporated Cities. IID is required to manage its water right to ensure reasonable and beneficial use; as such IID is in a position to review and approve any change in place or change in type of use that is temporary (e.g., fallowing, conditional use permits) or permanent changes (e.g., urban development). IID could institute a permitting process to review and approve temporary (fallowing, CUP for solar development) or permanent (urban use) changes in place or type of water use. Such a process could be used to mitigate negative impacts (see next section) and to ensure equity and fairness by increasing consistency and minimizing ad hoc and/or arbitrary decision making. An IID permitting process would complement the land use authorities of the Cities and Imperial County, provide a basis for the Cities and County to make legally defensible findings about water supply	Comment noted. No change needed.

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			availability, and create certainty for project proponents." Still I feel that County Board decisions related to conversion to solar PV are creating a burden for IID and creating tremendous water use/allocation problems for the future.	
40	Document Portrayal of Quantification Settlement Agreement	Law Offices of Patrick J. Maloney	The IRWMP suggests that a "host of technical problems and institutional issues covering Southern California and Lower Colorado River geography were resolved by the QSA/Transfer Agreements ... ." (p. 1-9) The plan further notes that the QSA created "changed circumstances under which IID must manage the major water source of the Imperial Region. Specifically, resolution of the interregional and interstate conflicts resulted in supply constraints for IID customers that now must be resolved at the local level. QSA/Transfer Agreements and related Colorado River operating policies represent the baseline conditions for the IRWMP." (p. 1-10). The plan relies on the QSA and an apparent unstated interpretation of the several decisions in reaching many of the conclusion throughout the report, e.g., Executive Summary; Chapters 1, 5, 8 and 11. Absent from the plan is any reference to the fact that the QSA/Transfer Agreements have been the subject of litigation since late 2003. Whether or not they will be validated is yet to be determined. See Morgan/Holtz Parties Opening Remand Brief filed in the QSA Coordinated Civil Cases, JCCP No. 4353, on September 10, 2012; sections I., II., and IV (enclosed); August 1, 2012 Final Status Conference Order regarding QSA remand trial. What affect the QSA may have on "IID customers" and what, if any, constraints on water availability for the Imperial Valley it entails is not yet determined. The future of the QSA is unknown -- something IID	Comment noted. The QSA/Transfer Agreements are part of existing water management standard for IID water supplies; and, while QSA/Transfer Agreements have been subject to litigation since 2003, they are currently valid and effective agreements. The IRWMP must address the status of circumstances known at this time. The IRWMP will be updated according to Section 8 of the Executive Summary, and any changes in circumstances will be addressed at that time.

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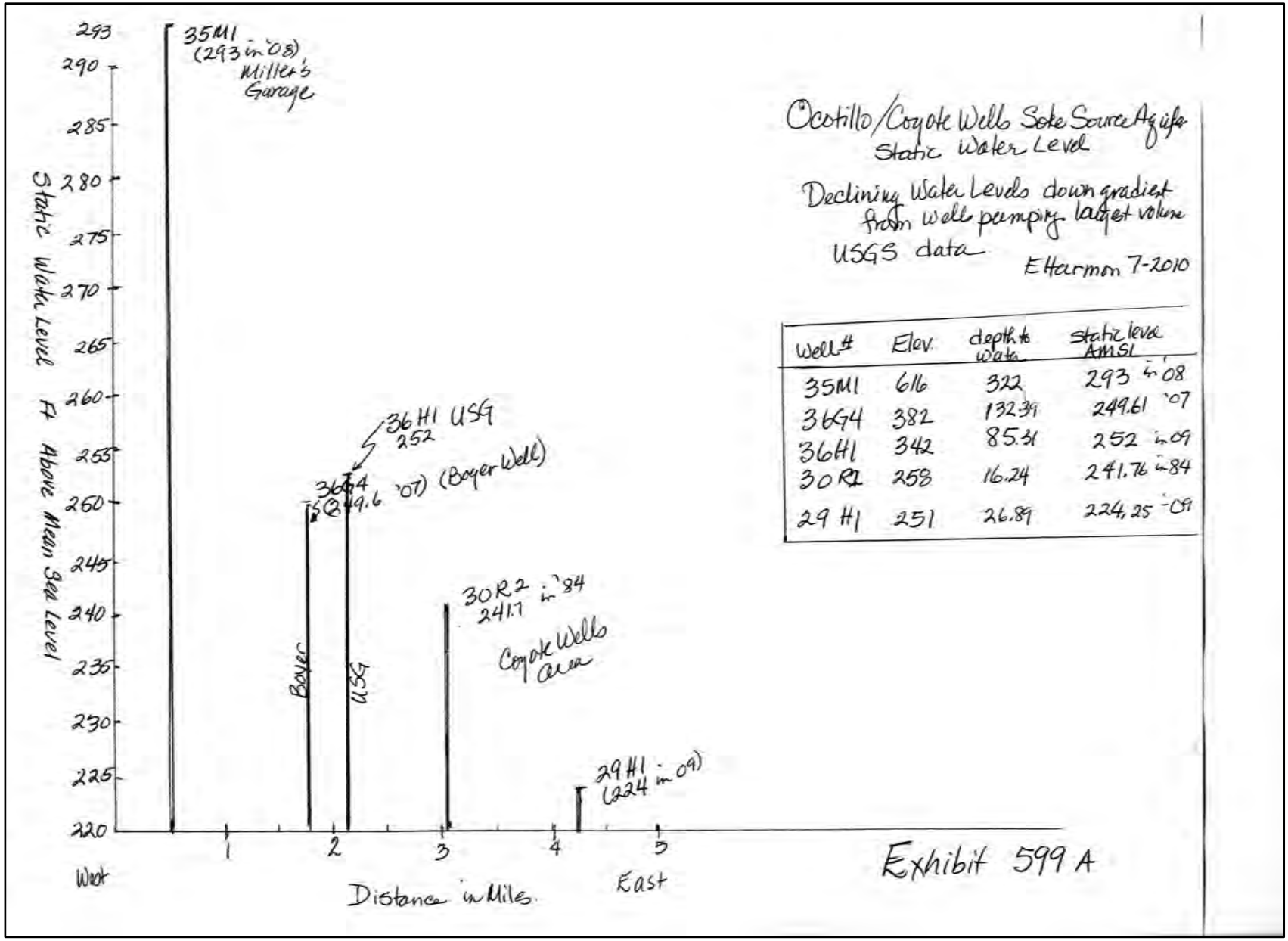
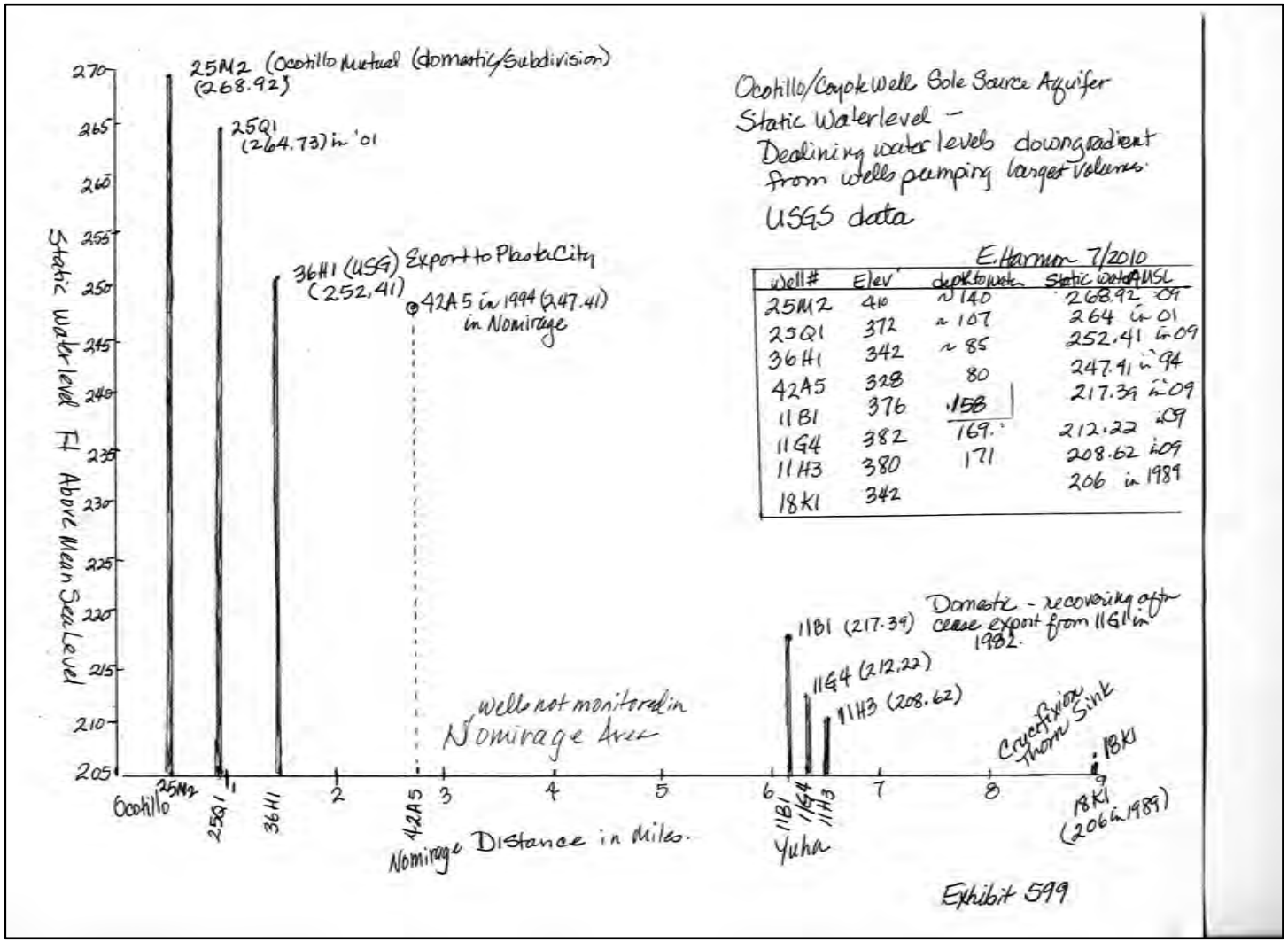
			has itself acknowledged. Over the past year IID has been working on its "QSA Plan B for Protecting Water Rights, the Imperial IRWMP Page September 14, 2012 2 Environment, and the People of Imperial Valley." Attached is the final Plan B report provided to IID and the public on September 5, 2012, which will be the subject of one of the agenda times for the IID Board meeting on September 18, 2012 (along with several Resolutions that may likewise impact the QSA and hence Valley water availability). Before a final Imperial IWRMP is approved and/or implemented, the plan needs to incorporate alternatives for regional water resource management that include the possibility that there will be no QSA or there will be a renegotiated QSA. This would impact the availability of Imperial water for purposes envisioned in the plan.	

Figures from Edie Harmon, EH




25M2 (Ocotillo Mutual (domestic/Subdivision) (268.92)
25Q1 (264.73) in '01
36H1 (USG) Export to Plaster City (252.41)
42A5 in 1994 (247.41) in Nomirage
Ocotillo/Cayok Well Sole Source Aquifer
Static Waterlevel –
Declining water levels downgradient from wells pumping largest volumes.
USGS data
E. Harmon 7/2010
Well# Elev' dept to wat Static water MSL
25M2 410 ~140 268.92 '09
25Q1 372 ~107 264 in 01
36H1 342 ~85 252.41 in 09
42A5 328 80 247.91 in 94
11B1 376 158 217.39 in 09
11G4 382 169 212.22 '09
11H3 380 171 208.62 '09
18K1 342 206 in 1989
Domestic - recovering after cease export from 11G1 in 1982.
1181 (217.39)
1164 (212.22)
1143 (208.62)
Injection from Sink
18K1
18K1 (206 in 1989)
Wells not monitored in Nomirage Area
Static Water level Ft Above Mean Sea Level
270
265
260
255
250
245
240
235
230
225
220
215
210
205
Ocotillo
25M2
25Q1
36H1
42A5
Nomirage
1
2
3
4
5
6
7
8
9
1181
1164
1143
Yuha
Distance in Miles.
Exhibit 599

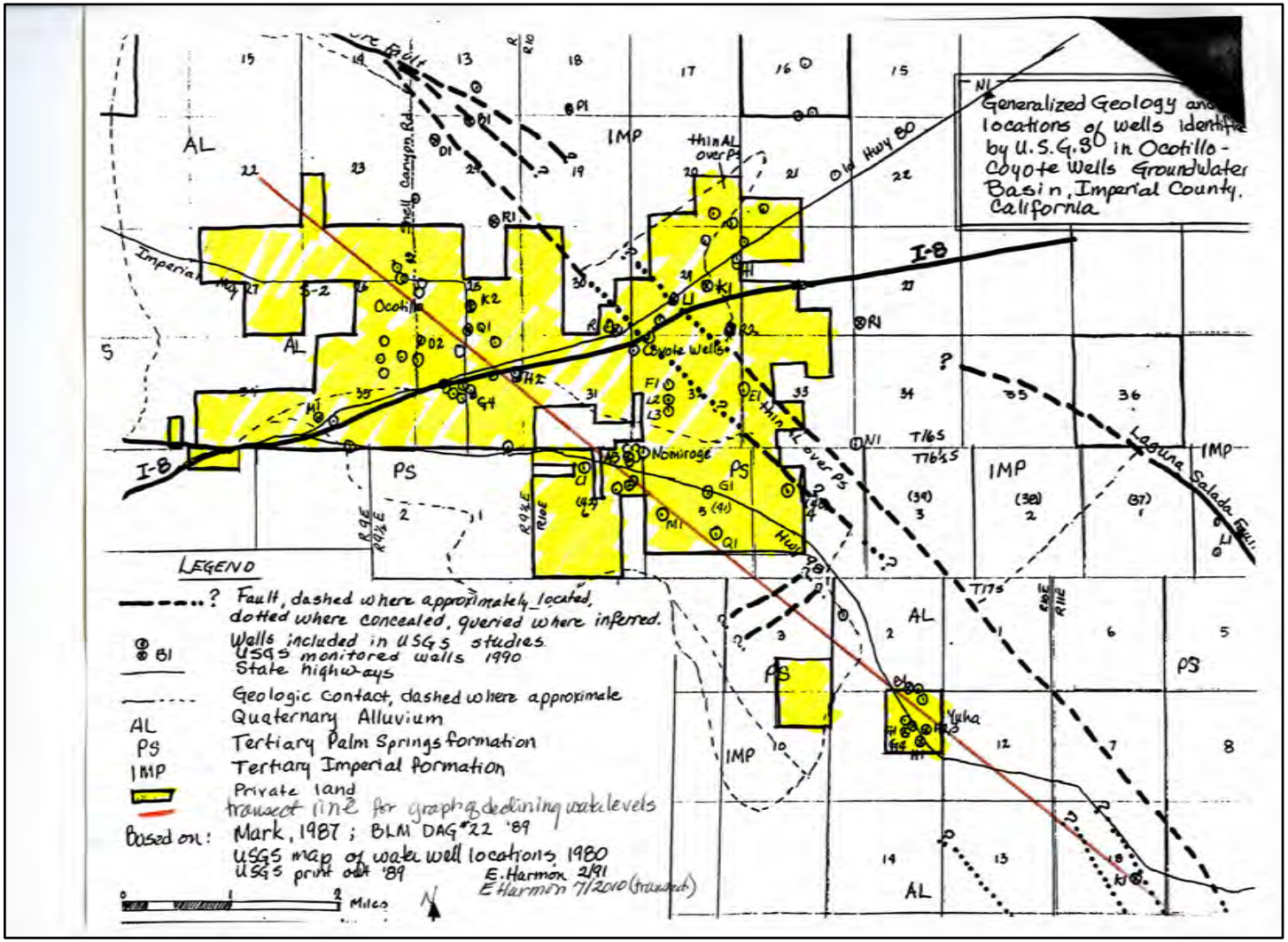

Generalized Geology and locations of wells identified by U.S.G.S. in Ocotillo - Coyote Wells Groundwater Basin, Imperial County, California
LEGEND
Fault, dashed where approximately located, dotted where concealed, queried where inferred.
Wells included in USGS studies
USGS monitored wells 1990
State highways
Geologic contact, dashed where approximate
AL Quaternary Alluvium
PS Tertiary Palm Springs formation
IMP Tertiary Imperial formation
Private land
transect line for graph of declining water levels
Based on: Mark, 1987; BLM DAG #22 '89
USGS map of water well locations, 1980
USGS print out '89
E. Harmon 2/91
E Harmon 7/2010 (transect)
Miles
Ocotillo
Coyote Wells
Nomirage
Yuha
Imperial Hwy 80
I-8
Laguna Salada Fault
Shell Canyon Rd.
thin AL over PS

Table 10 for EH Comments 17, 22 and 23

Exhibit EH Table 10 Water well information, water quality, and groundwater elevations
Ocotillo/Coyote Wells Groundwater Basin, a Sole Source Aquifer, Imperial County CA

(USG 2006 EIR/EIS Appendix B-1 USGS Hydrologic Data, USGS NWIS water level and quality data & Bookman- Edmonston 3/96 (BE96) and BE 1/2004 (BE04) cited in Coyote Wells Specific Plan 1/2010 DEIR).
Not all data are shown for all wells, and not all wells monitored only once are included.
Water level measurements are fall data where possible and water quality is when monitored. Updated 2012-04-08

Well USGS ID (T/R-S) USGS Site ID #	Well depth ft.	Land Surface Elevation ft.	Base of well ft. above sea level	Static water level below ground surface ft.	Groundwater elevation ft. above mean SL = AMSL	Elev. AMSL Year	mg/l Total Dissolved Solids	TDS Year
16S/9E-24B1 (E of fault) ID 324608115593501	128.5	385	256.5	105.35 107.75 108.44 109.35 109.45 109.58	269.65 277.71 276.56 275.65 275.55 275.42	1976 1995 2001 2007-10 2008-10 2009-10	1270 1230 1240 1300 1240 1200 1210 1200 1220	1977 1995 2001 2004 2007 2008 2009 2010 2011
16S/9E-24D1 (W of fault) ID 32455811559201	149	382	233	103.86 108.13 BE 107.13 USGS 107.89 108.98 109.16 109.21	278.14 276.44 274.87 274.11 273.02 272.84 272.79	1977 1995 1995 2001 2007 2008-10 2009-10	476 468 470 486 481 497 486 498	1980 1995 2001 2007 2008 2009 2010 2011
16S/9E-24N1	118	380	262	98.00	282	1975 - 5	477	1975
16S/9E-24R1	101.5	335	233.5	58.00 60.33	277 274.67	1976 1989	357 410	1977 1989
16S/9E-25K1	247	362	115	84.00 89.09 90.46	287.00 272.91 271.54	1958 - 11 1974 - 12 1980	340	1972
16S/9E-25K2 MC ID 324939115593401	372 depth of hole 4000	364	-8	99.70 93.99 94.06 95.08 94.61 96.51 Pumping	264.3 270.01 269.94 268.92 269.39 267.41	1975 1980 1987 1993 1996 1997	245 303 305 590 405 393 337 338 342 313 360 319 327 351 357 364 342 333 342	1974 1977 1980 1982 1988 1989 1994 1996 1997 2000 2001 2002 2003 2004 2005 2006 2007 2008 2009
16S/9E-25K4							394	1985

Well USGS ID (T/R-S) USGS Site ID #	Well depth ft.	Land Surface Elevation ft.	Base of well ft. above sea level	Static water level below ground surface ft.	Groundwater elevation ft. above mean SL = AMSL	Elev. AMSL Year	mg/l Total Dissolved Solids	TDS Year
16S/9E-25M1 OM	262	410	148	140	270	1974	378 316 334	1962 1967 1993
16S/9E-25M2 OM ID 324446115595901	336	410	74	137.69 137.42 138.39 140.71 141.06 141.96 142.17 141.35 141.08 140.06	272.31 272.58 271.61 269.29 268.94 268.04 267.83 268.65 268.92 269.94	1991 - 10 1995 - 10 2000 - 10 2004 - 3 2005 - 10 2006 - 10 2007 - 10 2008 -10 2009 -10 2010 - 10	437	1971
16S/9E-25Q1	128.5	372	243.5	104.24 107.27	267.76 264.73	1974 1991 2001	322	1974
16S/9E-26F1	38.7	250	211.3	22.20 26.95	227.8 223.05	1975 2001		
16S/9E-26F1 (a) ID 324455116003801 S-2 W of Ocotillo	300	430	130	195.01 196.86 197.08 197.19 197.30	234.99 233.14 231.92 232.81 232.70	1998 2007 2008-10 2009-10 2010 - 10		
16S/9E-26G1		440		165.32	274.68	1995		
16S/9E-26H2	278	418	140				259 302	1970 1993
16S/9E-29H1	35.5	250		22.03 22.24 23.43 25.58 26.55 27.17 27.26 27.34 27.35		1975 1980 - 10 1985 - 10 1990 - 10 1995 - 10 2000 - 10 2005 - 10 2008 - 10 2010 - 10		
16S/9E-34B1 RH ID 324424116012301	410	580	170	324.57 325.36 325.90 326.41 326.64 326.79 326.81	255.43 254.64 254.10 253.59 253.36 253.21 253.19	1997 1998 - 3 2003 - 10 2005 - 10 2007 - 10 2008 - 10 2009 - 10 2010 - 6	309 309 349 303 304 310 308 309 302 300 298	1997 1998 1999 2001 2003 2005 2007 2008 2009 2010 2011
16S/9E-35A1	227	472	245				923	1975
16S/9E-35B1		476		216	260	1975 - 6		
16S/9E-35N1	500	600					338	1963

Well USGS ID (T/R-S) USGS Site ID #	Well depth ft.	Land Surface Elevation ft.	Base of well ft. above sea level	Static water level below ground surface ft.	Groundwater elevation ft. above mean SL = AMSL	Elev. AMSL Year	mg/l Total Dissolved Solids	TDS Year
16S/9E-35N2 ID 3243116005501		600		317 315.57 316.41	283 284.43 283.59	1975 2000 2007		
16S/9E-35M1 MG ID 324345116010001	495 depth of hole 535	616	151	321 323.16 323.89 324.87 326.01 323.29 321.3 324.42 325.34 322.43 No data 321.29	295 292.84 292.11 291.13 289.99 292.57 294.70 291.58 290.66 293.57 294.71	1967 - 3 1975 - 6 1980 - 9 1985 -10 1989 - 3 1995 - 10 1999 -10 2006 - 10 2007 - 10 2008 - 10 2009 - 10 2010 - 10	334	1975
16S/9E-36B1 USG USG #6	460	350	-110	90.75	258.60	1995	306 406	1963 1966
16S/9E-36C1	157	382	225				292 315 326	1952 1953 1956 1962
16S/9E-36C2 CV ID 324416115594101	303	384	81	125	259	1975 - 6	299 367 368 354 346 355 346 364 348 354 350 359 349 485	1961 1991 1993 1995 1998 2000 2001 2003 2005 2007 2008 2009 2010 2011
16S/9E-36C3 CV ID 32441615594102	312	384	72	110.00 178.47 129.31 Pumping	274 205.53 254.69	1975 2001 2002 2006	**314**	1971
16S/9E-36D1	333	452	81				365	1975
CONTINUED								

Well USGS ID (T/R-S) USGS Site ID #	Well depth ft.	Land Surface Elevation ft.	Base of well ft. above sea level	Static water level below ground surface ft.	Groundwater elevation ft. above mean SL = AMSL	Elev. AMSL Year	mg/l Total Dissolved Solids	TDS Year
16S/9E-36D2 ID 32442211600301	200	433	233	157.90 158.46 160.56 161.30 161.85 162.57 163.14 163.45 163.83 164.14 164.82 165.02 165.31 165.28 164.81 164.36	275.10 274.54 272.44 271.70 271.15 270.43 269.86 269.55 269.17 268.86 268.18 267.98 267.69 267.72 268.19 268.64	1975 - 6 1980 - 9 1985 - 10 1990 - 10 1995 - 10 2000 - 10 2001 - 10 2002 - 10 2003 - 10 2004 - 11 2005 - 10 2006 - 10 2007 - 10 2008 - 10 2009 - 10 2010 - 10	356 347	1975 1990
16S/9E-36D3 ID 324415116000501	333	450	117				365 372 360 350 358 356 357 361 357 365 346 359	1975 1992 1995 1998 2000 2003 2005 2007 2008 2009 2010 2011
16S/9E-36F3 USG #3	658	432	-226				595	1950
16S/9E-36G1 WW	214	385	171				357 341 356 428 635	1951 1958 1962 1973 1975
16S/9E-36G3 USG	450	354.49	-97	103.17	252.32	1995	333	1963
16S/9E-36H1 USG USG #5 about 1,700 ft. S of 36B1 ID 324407115590901	380 410	337.72 BE 342 USGS	-42 -68	68.50 80.07 82.67 84.08 84.07 82.60 83.36 85.13 85.54 86.72 88.07 88.75 90.08 90.72 91.05 88.67 85.31	269.22 257.65 255.05 253.64 253.65 255.12 254.36 252.59 252.18 251.00 249.65 248.97 247.64 247.00 246.67 249.05 252.41	1954 - 3 1974 - 11 1980 - 9 1985 - 10 1990 - 10 1995 - 10 1998 - 10 2000 - 10 2001 - 10 2002 - 10 2003 - 10 2004 - 11 2005 - 10 2006 - 10 2007 - 10 2008 - 10 2009 - 10	288 312 300 305 299 297 300 321 295 299 294 298 303 301 301 300 305 304 306	1963 1977 1980 1985 1991 1995 1998 2000 2001 2002 2003 2004 2005 2006 2007 2008 2009 2010 2011

Well USGS ID (T/R-S) USGS Site ID #	Well depth ft.	Land Surface Elevation ft.	Base of well ft. above sea level	Static water level below ground surface ft.	Groundwater elevation ft. above mean SL = AMSL	Elev. AMSL Year	mg/l Total Dissolved Solids	TDS Year
16S/9E-36G4 WW ID 324401115593201	560	382	-178	136.47 126.53 122.63 123.97 132.60 132.39	245.53 255.47 259.37 258.03 249.40 249.61	1975 1980 - 9 1985 - 10 1995 2000 - 10 2007 -10	310 353	1974 1975
16S/9E-36L1 USG	372	427	55				407	1958
16S/9E-36L2	600	410	-190	152	258	1975 - 6	293 300	1969 1975
16S/9E-36R1	394 hol	430	44	163	267.0	197 - 12		
16S/10E-14N1	118.5	225	106.5	92.37 95.33	132.63 129.67	1975 1988		
16S/10E-16B1	104	215	111 hole				24000	1968
16S/10E-16B2		210		23	187	1975 - 6		
16S/10E-16D1 1.5 mi N USG-PC	152	65	-87	52.09 45.55	12.91 19.45	1974 2001	15200	1975
16S/10E-16Q1		218		20	198	1975 - 2		
16S/10E-18P1 hurricane effect	300	340	40	70.00 Dry	230 Dry	1975 1985	15700	1975
16S/10E-20R3	79	260	181	33	227	1975		
16S/10E-24R1	101.5	335	233.5	58.00 59.36 59.89 60.33	277 275.64 275.11 274.67	1976 - 11 1980 - 9 1985 - 10 1898 - 3		
16S/10E-27R1 324430115555501 E of Coyote Wells	104	300	196	98.97 95.53 98.49 98.38 98.38 98.28 98.33	201.25 204.47 201.54 201.62 201.62 201.72 201.67	1975 1995 BE 2001 2007 2008 2009 2010	3770	1975
16S/10E-28D1		253.33	200	29.94 29.72 29.76 29.46 30.29	223.39 223.61 223.57 223.87 223.04	1995 2007 2008 2009 2010	8600	1948
16S/10E-29K1	39	255	216				2590	1975
16S/10E-29L1	48.45	280	231.55	23.32 29.68	256.68 250.32	1976 1988	713 660 670	1977 1983 1988

Well USGS ID (T/R-S) USGS Site ID #	Well depth ft.	Land Surface Elevation ft.	Base of well ft. above sea level	Static water level below ground surface ft.	Groundwater elevation ft. above mean SL = AMSL	Elev. AMSL Year	mg/l Total Dissolved Solids	TDS Year
16S/10E-29H1 ID 324458115570301	35.5	251.23	215.73	22.20 22.24 23.43 25.58 26.55 27.17 27.12 27.12 27.10 27.34 27.34 26.98 27.35	220.03 221.55 227.8 225.65 224.68 224.06 224.11 224.11 224.13 223.89 223.89 224.25 223.88	1975 1980 - 9 1985 - 10 1990 - 10 1995 - 10 2000 - 10 2003 - 10 2005 - 10 2006 - 10 2007 - 10 2008 - 10 2009 - 10 2010 - 10	54200	1975
16S/10E-29R2 ID 324428115570701	30	258	228	9.74 13.49 16.24 dry	248.26 244.51 241.76	1973 - 5 1980 - 9 1984 - 10 1985 - 10		
16S/10E-30R2	30	258	228	9.74 13.49 16.24	248.26 244.51 241.76	1973 - 5 1980 - 9 1984 - 10	1300	1958
16S/10E-30R1 ID 324428115581601	75	290	215				527 479 579 560 579 609 654 757 766 **801** 671 644 657 582 548 533 566 535 535 517 498 525	1957 1975 1980 1984 1985 1986 1987 1988 1989 **1990** 1993 1994 1995 1996 2000 2003 2005 2007 2008 2009 2010 2011
16S/10E-31B1 ID 324417115582401	255	293.01	38.01	45.22 45.56 46.80 48.98 49.40 49.46 49.15 48.84	247.79 247.45 246.19 243.39 243.55 243.86 244.17	1993 1995 2001 2006 2007 2008 2009 2010 - 10		
16S/10E-31D1		320		61.44	258.56	192 - 4		
16S/10E-31D2		269		19	250	1975 - 5		
16S/10E-32L2	100	280	180				320	1975

Well USGS ID (T/R-S) USGS Site ID #	Well depth ft.	Land Surface Elevation ft.	Base of well ft. above sea level	Static water level below ground surface ft.	Groundwater elevation ft. above mean SL = AMSL	Elev. AMSL Year	mg/l Total Dissolved Solids	TDS Year
16S/10E-32F1	210	275	65				593	1975
16S/10E-32P1 ID 324342115574301		281.58		40.16 41.35 42.77 42.52 43.29 43.51 43.49 43.70 43.85 44.02 44.27 44.28 44.53	241.42 240.23 238.81 239.06 238.29 238.07 238.09 237.88 237.73 237.56 237.31 237.3 237.08	1992 - 10 1995 - 10 2000 - 10 2001 - 10 2002 - 10 2003 - 10 2004 - 11 2005 - 10 2006 - 10 2007 - 10 2008 - 10 2009 - 10 2010 - 10		
16S/10E-33E1	24	265	241	17	148	197 - 5	6910	1975
16S/10E-34N1	119	320	101	77	243.0	1975 - 5	1610	1975
16S/10E-35N2 ID 324343116005501		600		317.00 315.43 315.79 316.23 316.41 no data	283 284.57 284.21 283.77 283.59	1975 2001 20-03 2005 2007 2008		
16S/10E-40F1		286		49	237	1974 - 10		
16S/10E-41D1		324					742	1963
16S/10E-41D2		320					454	1962
16S/10E-41G1	65	284	219				1970	1975
16S/10E-41M1	150	340	190	71	269	1971 - 10	2300	1975
16S/10E-41Q1	47	300	253				2190	1975
16S/10E-42A1	130	334	204	87.72 88.22	246.28 245.78	1995 - 10 1996 - 10	464	1974
16S/10E-42A2		336		73.21 76.33 80.59	26279 259.67 255.41	1974 1984 1994	537	1974
16S/10E-42A3	146	330	184				392	1974
16S/10E-42A4		330		73.00	257.0	1974 - 12	554	1995
16S/10E-42A5 ID 324329115580501		328		73.21 74.96 76.20 79.04 80.59	254.79 253.04 251.80 248.96 247.41	1974 - 12 1980 - 9 1983 - 10 1989 - 10 1994 - 3	415 418 463 455 410	1974 1979 1983 1989 1994
16S/10E-42A7	93	318	225				583	1975

Well USGS ID (T/R-S) USGS Site ID #	Well depth ft.	Land Surface Elevation ft.	Base of well ft. above sea level	Static water level below ground surface ft.	Groundwater elevation ft. above mean SL = AMSL	Elev. AMSL Year	mg/l Total Dissolved Solids	TDS Year
16S/10E-42A8 ID 324323115580001	112	325	213				886 906 951 964 851 891 958 868 935 901 1170 1220	1994 1996 1999 2001 2003 2005 2006 2007 2008 2009 2010 2011
16S/10E-42C1	330	380	50				4420	1975
16S/10E-42H1	350	362	12	109 173.20 172.36 172.42 171.29 170.95	253 188.8 189.64 189.58 190.71 191.05	1971 - 10 2001 - 10 2003 - 10 2004 - 11 2005 - 10 2006 - 10	668	1975
16S/10E-42H2		342		84	258	1975 - 6		
16S/10E-42H3	167	345	178					
16S/10E-42L ID 324251115522201	130.4	195		39.9 13.32 17.27 20.20 21.12 23.45 25.23 26.78 28.16 25.99 27.80 29.27 30.88 31.42 32.45		1975 - 6 1993 - 10 1998 - 10 1999 - 10 2000 - 10 2001 - 10 2002 - 10 2003 - 10 2004 - 10 2005 - 10 2006 - 10 2007 - 10 2008 - 10 2009 - 10 2010 - 10		
16S/11E-23B1 3.5 mi SE USGPC by Dunaway Rd ID 324603115480501	123	30	-93	39.35 44.62 50.82 51.44 51.27 51.65 51.35 50.80	-9.35 -14.62 -20.82 -21.44 -21.27 -21.65 -21.35 -20.80	1974 1995 2001 2006 2007 2008 2009 2010		
16S/11E-29L1	114	210	96	111.00 112.65 Dry from '76-'80	99 97.35 why dry?	1975 1976 - 1		

Well USGS ID (T/R-S) USGS Site ID #	Well depth ft.	Land Surface Elevation ft.	Base of well ft. above sea level	Static water level below ground surface ft.	Groundwater elevation ft. above mean SL = AMSL	Elev. AMSL Year	mg/l Total Dissolved Solids	TDS Year
16S/11E-27F1 ID 324500115492101	135	100	-35	98.90 99.78 100.12 99.80 100.09 100.09 100.64	1.10 0.22 -0.12 0.20 -0.09 -0.09 -0.64	1975 - 6 1995 2000 - 10 2007 - 10 2008 2009 2012		
16S/11E-42L1 E of LS fault ID 32451115522201	143.5	194.69	51.2	44.77 14.04 el Nino 15.99 21.20 29.27 30.45 31.42	149.92 180.65 178.70 173.49 165.42 164.24 163.27	1975 1993 1995 2001 2007 2008 2009	38400	1975
16S/11E-42M1 ID 324258115523501	7	220	113	7.5 4.7 Dry	212.5 215.3	1949 1975 1983		
16S/11E-42M4							805	1975
16S/11E-42M5 W of LS fault ID 324258115524101	9.3	215.54	206.24	4.3 5.52	211.24 210.02	1949 1995		
17S/10E-11A1	330	382	52				446	1975
17S/10E-11A2 NE of 11G1	360	373.96	13.96	166.67	207.29	1995	350 331	1972 1975
17S/10E-11G2 affected by export from well 11G1 N of 11G1	315	375	60	158.00 164.00 164.45 165.09 166.84 168.93 172.38 178.03	217 211 210.55 209.91 208.16 206.07 202.62 196.97	1971 - 11 1975 - 6 1977 - 10 1978 - 7 1979 - 9 1980 - 9 1981 - 11 1982 - 10	335 363 369 370 377 377 392	1972 1977 1978 1979 1980 1981 1982
CONTINUED								

Well USGS ID (T/R-S) USGS Site ID #	Well depth ft.	Land Surface Elevation ft.	Base of well ft. above sea level	Static water level below ground surface ft.	Groundwater elevation ft. above mean SL = AMSL	Elev. AMSL Year	mg/l Total Dissolved Solids	TDS Year
17S/10E-11G1MY export starts 9/1/77 lawsuits export stops 9/1/82 also a few months of export pumping in 1972, stopped by court ID 324123115552901 still recovering after export ceased	300	380.14	80.14	170 164.94 165.11 195.58 225.68 232.60 221.20 195.86 187.63 185.31 182.68 182.48 180.50 179.45 177.59 178.03 178.89 177.15 176.52 176.35 175.20 174.59 174.03 173.20 172.36 172.42 171.29 170.95 171.21 No data No data 168.77	210.14 202.99 215.03 184.56 154.46 147.54 158.94 184.28 192.51 194.83 197.46 197.66 199.64 200.69 202.55 202.11 201.25 202.88 203.62 203.79 204.94 205.55 206.1 206.94 207.78 207.72 208.85 209.18 208.93 211.37	1967 - 4 1975 - 6 1976 -1 1978 - 7 1980 - 9 1981 - 11 1982 - 10 1983 - 10 1984 - 10 1985 - 10 1986 - 10 1987 - 10 1988 - 10 1990 - 10 1991 - 10 1992 - 10 1993 - 10 1995 - 10 1996 - 10 1997 - 10 1998 - 10 1999 - 10 2000 - 10 2001 - 10 2003 - 10 2004 - 11 2005 - 10 2006 - 10 2007 - 3 2008 2009 2010-10		
17S/10E-11G4 see last page								
17S/10E-11B1 affected by export from well 11G1 NE of 11G1 ID 324138115552901	301	376	75	156.80 157.90 159.53 161.06 162.47 163.03 163.49 163.30 164.05 163.72 163.87 163.62 162.53 160,82 160.28 159.99 159.54 159.21 158.61 158.25 157.87	219.2 218.1 216.47 214.94 213.53 212.97 212.51 212.7 211.95 212.28 212.13 212.38 213.47 215.18 215.72 216.01 216.46 216.79 217.39 217.75 218.13	1975 - 6 1978 - 6 1979 - 9 1980 - 9 1981 - 11 1982 - 10 1984 - 10 1986 - 10 1988 - 10 1990 - 10 1993 - 10 1996 - 10 1999 - 10 2004 - 11 2005 - 10 2006 - 10 2007 - 10 2008 - 01 2009 - 10 2010 - 10 2011 - 03		

Well USGS ID (T/R-S) USGS Site ID #	Well depth ft.	Land Surface Elevation ft.	Base of well ft. above sea level	Static water level below ground surface ft.	Groundwater elevation ft. above mean SL = AMSL	Elev. AMSL Year	mg/l Total Dissolved Solids	TDS Year
17S/10E-11H1 affected by export pumping of 11H1 S of 11G1	329.9	380	50.1	158.27 164.2 166.05 170.46 173.35 180.35 174.33 171.69	221.73 215.80 213.95 209.54 206.65 199.65 205.67 208.31	1964 - 6 1978 - 6 1979 - 9 1980 - 9 1981 - 11 1982 - 10 1983 - 10 1985 - 10		
17S/10E-11H2 affected by export from well 11G1 SE of 11G1 well failed 4/87	344	376	32	165.00 169.40 176.29 180.36 184.43 189.87 187.34 186.75 190.27 187.41	211 206.6 199.71 195.64 191.57 186.13 188.66 189.25 185.73 188.59	1973 1978 - 6 1979 - 9 1980 - 10 1981 - 10 1982 - 10 1983 - 10 1984 - 10 1985 - 10 1986 - 10	300 291 297 293	1983 1984 1985 1986
17S/10E-11H3 978.5 ft SE of 11G1 replacement domestic for 11H2 affected by export from well 11G1, shows recovery ID 324117115552001	348	380	32	179.29 180.11 179.08 178.57 178.32 176.89 174.26 175.64 172.88 171.69 170.99 171.38 170.29 169.20	200.71 199.89 200.92 201.43 201.68 203.11 205.74 204.36 207.12 208.31 209.01 208.6 209.71 210.80	1987 - 10 1988 - 10 1989 - 10 1990 - 10 1995 - 10 1997 - 10 2001 - 10 2003 - 10 2005 - 10 2007 - 10 2008 - 10 2009 - 10 2010 - 10 2011 - 10	313 311 319 3116 312 309 280 307 311 313 289 289 307 280	1987 1988 1989 1991 1995 1997 2001 2003 2005 2007 2008 2009 2010 2011
17S/10E-18K1	150	341.6	192	136.7 136.2 135.7 135.57	204.90 205.4 205.9 206.04	1975 - 12 1980 - 9 1985 - 10 1989 - 3	431	1975
17S/10E-19F1		120		346.05	-226.05	1974 - 10		
17S/11E-22E2 ID 323923411580470 1 S of Hwy 98 by LS fault	119.6	303.9	184.3	102.48 97.65 97.38 97.16 96.88 96.37	201.42 206.52 206.74 207.02 207.53	1975 2006 2007 2008 2009 2010		

Well USGS ID (T/R-S) USGS Site ID #	Well depth ft.	Land Surface Elevation ft.	Base of well ft. above sea level	Static water level below ground surface ft.	Groundwater elevation ft. above mean SL = AMSL	Elev. AMSL Year	mg/l Total Dissolved Solids	TDS Year
17S/11E-16J1 ID 324013115511101 by Hwy 98 near Laguna Salada Fault	366	298.7		96.63 96.06 95.44 95.0 94.53 93.76 91.93 91.68 91.44 91.17 90.87	202.07 202.64 203.26 203.7 204.17 204.94 206.77 207.02 207.26 207.53 207.83	1972 1974 1980 1985 1991 1995 2000 2006 2007 2008 2009 2010		
17S/10E-11G4 MM unused well affected by export from well 11G1 unused 867 ft W of export well 11G1 ID 324119115553201 still recovering after export at G1 ceased 9/82	500	382.14	-118	193.35 199.37 206.21 199.31 193.25 189.71 187.22 185.92 184.26 183.47 182.14 180.70 180.08 180.10 179.58 178.46 178.0 177.34 176.3 175.66 174.94 173.87 173.21 172.95 172.62 171.94 171.13 170.89 170.50 169.92 169.78	188.79 182.77 175.93 182.83 188.89 192.43 194.92 196.22 197.88 198.67 200.00 201.44 202.06 202.04 202.56 203.95 204.14 204.80 205.84 206.48 207.20 208.27 208.93 209.19 209.52 210.20 211.01 211.25 211.64 212.22 212.14	1978 - 8 1981 - 2 1982 - 10 1983 - 10 1984 - 10 1985 - 10 1986 - 10 1987 - 10 1988 - 10 1989 - 10 1990 - 10 1991 - 10 1992 - 10 1993 - 10 1994 - 10 1995 - 10 1996 - 10 1997 - 10 1998 - 10 1999 - 10 2000 - 10 2001 - 10 2002 - 10 2003 - 10 2004 - 11 2005 - 10 2006 - 10 2007 - 10 2008 - 10 2009 - 10 2010 - 10 2011 - 10		

See next page for Notes

NOTES:
* TDS Total dissolved solids in mg/L
(a) All 2010 water level data is Information from USGS Water Resources website: http://nwis.waterdata.usgs.gov/ca/nwis/gwlevels
AMSL Above Mean Sea Level static water level as feet above mean sea level measures groundwater level without confusing information about topography such as slopes or depressions
(b) Water quality data are from USGS Water Resources website at http://waterdata.usgs.gov/ca/nwis/qwdata more specifically for Imperial County well data http://nwis.waterdata.usgs.gov/ca/nwis/qwdata?county_cd=06025 &
(c) USGS well location maps & data for Imperial County, links to individual wells (easiest to use)
http://groundwaterwatch.usgs.gov/countymaps/CA_025.html
USGS 1980 Groundwater Quality Data Ocotillo-Coyote Wells Area, BE96 Appendix E, USG DEIR Appendix B-1 BE = Bookman-Edmonston groundwater study prepared for US Gypsum

BE96 Appendix E**,** BE2004 revised BE study for US Gypsum DEIR 2006

CV Coyote Valley Mutual Water Co. Serves residential subdivision Ocotillo Unit 2
MC McDougal/Clifford export well also served Ocotillo Unit 3 until 1984 when it stopped exporting groundwater
MY McDougal Yuha well, exported water for a few months in 1972 and from 1977 - 1982, domestic only since that time
MM McDougal unused well, drilled to depth but did not get potable water
MG Miller's Garage N of I-8 just E of jct w Hwy 98
OM Ocotillo Mutual Water Co. Serves residential subdivision Ocotillo Unit 1
RH Hamilton 1.25 mi W of CV Mutual Water Co. Furthest west well in the USGS monitoring program.
USG US Gypsum wells export water to Plaster City factory
WW Westwind Water Co A private water co provides water by truck to residences in West Texas and Painted Gorge
USGS Hydrologic Unit Code 18100200

IMPERIAL
IRWMP
INTEGRATED REGIONAL
WATER MANAGEMENT PLAN

GEI Consultants