

Water Supply Assessment Addendum II
Prepared for the County of San Bernardino

Date August 11, 2011

For the Hawes Composting Facility
Applicant:



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1 EXECUTIVE SUMMARY

This Addendum to the Water Supply Assessment (WSA) (“Addendum II”) assesses the sufficiency of water supplies for the Mojave Basin Area managed by the Mojave Water Agency (MWA) for the Hawes Composting Facility (HCF). The AWSA incorporates, by reference, the information contained within the February 18, 2009 Water Supply Assessment, prepared by Integrated Resource Management, LLC for the County of San Bernardino to analyze water impacts related to the HCF, as well as the November 3, 2009 Addendum to that study, prepared by PBS&J in response to comments by the Mojave Water Agency (MWA), and is based upon the 2010 MWA Final Urban Water Management Plan (UWMP). The Addendum II, more specifically, includes additional information to address the issue of availability and sustainability of the water supply in the Centro Subarea of the Mojave Basin Area for the HCF, which is anticipated to produce and utilize up to 1.1 acre feet of ground water per year (AFY). This Addendum II, based on the information contained within the UWMP, concludes that there will be sufficient water supplies for the Project during all hydrologic conditions, including normal, single dry, and multiple dry years, for at least 20 years into the future as is required by Water Code section 10910.

The authority of the MWA to regulate and charge for water withdrawal and otherwise manage the use of the groundwater basin was adjudicated with a Final Judgment in January 10, 1996. The Final Judgment contains specific provisions for those project’s whose water requirement is less than 10 AFY, treating such projects as “minimal producers” and subjecting those projects to MWA Ordinance No. 11 and shall be subject to the minimal producer fee for replenishment of water supplies. The Final Judgment contains provisions permitting any person or entity who is not yet a Party or successor to a Party to the Judgment, who proposes to produce water from the Basin Area to become a Party to the Judgment through a Stipulation for Intervention entered into with the Watermaster. When submitted to and approved by the Court, the intervenor becomes a Party to, and is bound by all provisions of the Judgment and entitled to all of the rights and privileges accorded under the Physical Solution provisions thereof. The Final Judgment also permits any person or entity to purchase or otherwise acquire (pursuant to the Rules and Regulations of the Watermaster) any existing “Table B” Base Annual Production Rights of an existing Party to the Judgment. In order to produce these transferred rights, the purchaser must become a Party to the Judgment. If a person or entity intervenes without having purchased existing “Table B” Base Annual Production Rights, the intervenor is required to pay the Watermaster the going published rate for all production; whereas, if a person or entity intervenes with existing “Table B” Base Annual Production Rights, the intervenor is required to pay the Watermaster for only that portion of its production that exceeds the Free Production Allowance portion of the acquired existing “Table B” Base Annual Production Rights. Because the MWA is a contractor to the State Water Project and as such has the right to import water at such time as needed to assure the availability of water in the Mojave Basin, the Watermaster utilizes the funds paid by the intervenor to purchase and import like quantities of the un-entitled water produced by the

intervenor from the State Water Project. Currently MWA is entitled to 82,800 AFY of State Water Project (SWP) water. MWA also has negotiated with other water sources and purchases additional water as needed as was done in 1997 and 2009.

The Watermaster (which acts as the administrative agent of the Court under the Physical Solution and Judgment established pursuant to the Adjudication) has documented that the Centro Subarea in which the HCF is located is in surplus. Local water conservation efforts, water imported from the State Water Project water and other external sources, and management of the Centro Subarea by the Watermaster and Court pursuant to the Physical Solution has assured the sustainability for water sufficient to meet the needs of the region. The Physical Solution set forth in the Final Judgment of the Adjudication, empowers MWA (subject to the approval of the court) with the tools necessary to reduce water production by users throughout the Basin, if necessary to ensure adequate water supplies, through a process designated as “rampdowns” or adjustments to the Free Production Allowance of the Base Annual Production Rights. Initially stabilized at 80%, rampdowns have not been necessary in the Centro Subarea for over ten years, since the Watermaster has been managing the Physical Solution for the Mojave Basin, including the Centro Subarea.

The HCF is located in the Centro Subarea of the Mojave Basin Area. In order to meet its projected needs, the HCF will produce 1.1 AFY, or approximately .0045% of the total water produced in the Centro Subarea. This amount is within the margin of error of all volume estimates maintained by the MWA, and is within the anticipated production for the Basin for the required 20 year future conditions. Furthermore, the HCF is considered a minimal producer under the terms of the Final Judgment, and as such is required pay a fee for the replacement of water which it produces. Alternatively, as a Stipulating Party to the Judgment and Physical Solution, HCF is required to comply with all of the provisions of, and entitled to all of the rights and benefits under the Judgment, including the right to produce water from the Centro Subarea, subject only to the obligation to pay the Watermaster those funds mandated under the Judgment, with which the Watermaster will purchase a like amount of State Project Water, resulting in a “net zero impact” to (no additional burden on) the water supply of the Centro Subarea. Given these stated conditions, and as required by the California Urban Water Management Planning Act, the MWA has finalized the 2010 UWMP that projects the sustainability of water resource through 2035, and estimates the availability to meet demand at least through 2044. The Centro Subarea is in statistical hydrologic balance, and the available supply has exceeded the actual production for nine years of record keeping and as set forth below, the MWA has undertaken numerous actions to assure the sustainability into the future.

2 INTRODUCTION

2.1 Purpose

Water Code Sections 10910 through 10915 require land use planning entities, when evaluating certain development projects, to request an assessment of the availability of water supplies from the public water system that will provide water to the project. The WSA must be performed in conjunction with the land-use approval process associated with the project and must include an evaluation of the sufficiency of water supplies available to the public water system to meet existing and anticipated future demands, including the demand associated with the project, over a 20-year horizon that includes normal, single dry, and multiple dry years. The data provided in this assessment includes water supply and demand data beyond this 20 year period, through 2035.

The WSA must identify any existing water supply entitlements, water rights, or water service contracts held by the public water system or associated with the proposed project, and include a description of the quantities of water received in prior years by the public water system.

If the public water system relies on groundwater supplies, the WSA must describe all groundwater basins from which the proposed project will be supplied. For those basins for which a court or the board has adjudicated the rights to pump groundwater, the assessment should include a copy of the order or decree adopted by the court or the board and a description of the amount of groundwater the urban water supplier has the legal right to pump under the order or decree.

If the WSA concludes that additional water supplies are necessary, the public water system must submit plans for acquiring the additional water supplies, setting forth the measures that are being undertaken to acquire and develop those supplies. The discussion of future water supply projects and programs should include proposed methods of financing, estimated costs, information related to federal, state, or local permits, and the estimated timeframes within which the public water system expects to be able to acquire the additional supplies.

2.2 Scope of the Addendum to the Water Supply Assessment

This Addendum incorporates, by reference, the information contained within the February 18, 2009 Water Supply Assessment (WSA) prepared by Integrated Resource Management, LLC for the County of San Bernardino to analyze water impacts related to the HCF (included herein as Appendix A), the November 3, 2009 Addendum to that study, prepared by PBS&J in response to comments by the MWA (included herein as Appendix B), and is based upon the 2010 MWA Final Urban Water Management Plan (UWMP)

(included herein as Appendix C) and Final Judgment entered on January 10, 1996 (included herein as Appendix D). It is prepared in response to the Supplemental Writ filed in the San Bernardino Superior Court on July 11, 2011 and based upon the ruling issued by the Court on April 29, 2011 requiring substantial evidence of the adequacy of water supply for the HCF. This information is intended to satisfy the requirements of Water Code Sections 10910 and includes:

- A description of the Centro Sub Basin, including current and projected population, climate and other factors affecting water demands;
- Discussion of the additional demand that is anticipated to be created by the Project and the projected growth in demands within the Centro Sub Basin area during the next 20 years;
- Description of existing and project water supply sources, including:
 - Description of groundwater and surface water supplies and other sources available to the Centro Sub Basin;
 - Discussion of Plans to acquire additional water supplies;
- An assessment of the availability of these sources during normal, single dry, and multiple dry years through 2035;
- Impact of Adjudication on Intervenors.

The County of San Bernardino Land Use Services Department has prepared this Addendum II, in its role as lead agency under CEQA for the proposed development of the Nursery Products HCF in the unincorporated area of San Bernardino County. This Addendum II specifically responds to the Minute Order filed, June 24, 2011 by the Superior Court (included herein as Appendix E) and the Supplement Writ (included herein as Appendix F). The transcript of the Court's oral ruling (Appendix G) provides detailed clarification wherein the Judge ruled, "[T]here is no evidence supporting finding in the SEIR that there is sustainable groundwater in light of the evidence that the aquifer is in overdraft" and referenced pages 1957 in volume 7 and pages 1780-1784 volume 6 of the Administrative Record. (See Page 39, Appendix G). This WSA II addresses the specific issue identified by the Court related to the sustainability of the water resources evaluated in the WSA and WSA Addendum included in the Supplement Environmental Impact Report. This WSA II provides additional information and data responsive to the Courts' Minute Order and ruling as set forth in the hearing transcript and provides additional substantiation in the administrative record for the County of San Bernardino under CEQA. The County Land Use Services Department concludes that groundwater is sustainable in the Centro Subarea of the Mojave Basin for use at the Hawes Composting Facility.

2.3 Project Description

The HCF Project is proposed as a biosolids and green waste material composting facility. The Project would be located on an 80-acre portion of a 160-acre parcel located in the unincorporated area of San Bernardino County. Upon reaching full operating capacity, the facility would receive a daily average of 1,100 tons per day (400,000 tons per year) of biosolids and green waste materials from which would be produced compost for agriculture and landscaping applications. The facility is expected to operate for thirty years. The HCF is located in the Centro Subarea of the Mojave Basin Area.

The HCF Project requires up to a maximum daily demand of 1,000 gallons per day, or a total of 1.1 AFY. At full operation, about 30 acres will be subject to active equipment usage, usually daily. Of the 1000 gallons per day planned usage, about 900 gallons will be used primarily for dust suppression of soils disturbed by equipment and vehicles.

The water will be pumped from an on-site groundwater well with a 15 gallon per minute (gpm) pump, and stored within a 30,000 gallon storage tank designed to meet potential fire flow requirements. Between March 17, 2009 and March 20, 2009, a boring was drilled on the Project site to determine the depth to groundwater. Groundwater was first observed in the boring at a depth of 366 feet below ground surface on March 19, 2009. On March 20, 2009, the depth to groundwater within the borehole was 305 feet.

The demands of the proposed Project represent 0.0045 percent of the total projected demand for the Centro Subarea in year 2010, and 0.0036 percent of the total projected for 2035.

2.4 Mojave Groundwater Basin Description

The Mojave Groundwater Basin (commonly referred to as the Mojave Basin Area) covers an area of approximately 3,400 square miles. The adjudicated portion of the Basin is generally bound by the San Bernardino and San Gabriel Mountains to the south, Afton Canyon to the northeast, just beyond Lucerne Valley in the east, and the Antelope Valley to the north and west. The basin is crossed by the Mojave River, which flows from the south out of the San Bernardino Mountains (West Fork and Deep Creek) and then in a northeasterly direction in the area near the Barstow CSA. The Basin is divided into five hydrologic/management subareas: Este, Oeste, Centro, Baja, and Alto. The Barstow System pumps its water from the Centro Subarea.

The two primary interconnected water-bearing units in the Mojave Basin, from youngest to oldest, include:

- The Floodplain Aquifer, which consists of Pleistocene and younger river channels and floodplain deposits of sand, gravel, and silt. The predominantly unconfined

aquifer extends to an average depth of 200 feet, and is restricted to within approximately 1 mile of the active Mojave River channel. Specific yield of the aquifer averages approximately 22 percent, and wells yield up to 4,000 gpm (DWR, 2003; MWA, 2004a).

- The Regional Aquifer, which consists of two formations including the middle Pleistocene-aged unconsolidated alluvial deposits of fluvial sands, gravels, and silts deposited by the ancestral Mojave River, and the regional Late Tertiary and the younger unconsolidated to partially consolidated alluvial fan deposits of poorly sorted sands, gravels, silts, and clays. The aquifer can reach a thickness of 2,000 feet. The permeability decreases with depth; and the estimated effective thickness is approximately 300 feet.

Recharge within the Basin is from direct precipitation, ephemeral stream-flow, and underflow and infrequent surface flow of the Mojave River. Recharge also occurs from treated wastewater effluent, septic tank, and irrigation waters. There is estimated to be approximately 1,790,100 ac-ft of dewatered storage space in the five subareas of the Mojave Basin, with a total water storage capacity of nearly 5,000,000 acre-feet (DWR, 2003; MWA, 2004b).

Groundwater levels within the Floodplain Aquifer vary with rainfall and runoff, whereas the levels in the Regional Aquifer are not significantly influenced by changes in local rainfall. The groundwater flow direction is towards the active Mojave River channel and follows its course across the Basin. Within the Centro Subarea, the groundwater flow direction is to the north and northwest toward Harper Lake on the western side of Iron Mountain, and toward the east on the eastern side (DWR, 2003; MWA, 2004a).

3 Adjudication and Operation of the Mojave Basin

In 1996, the Mojave Basin was adjudicated in the case *City of Barstow, et al. vs. City of Adelanto, et al.* (Riverside Superior Court, Case No. 208568). Due to the magnitude and complexity of the case, the numerous water producers named in the lawsuit generated a settlement in the form of a Stipulated Judgment (Judgment). In accordance with Water Code section 10910(f)(2) a copy of the Judgment is provided in Appendix A.

MWA is the court-appointed Watermaster to assist the Court in ensuring compliance with the terms of the Physical Solution and Judgment. The Watermaster monitors and verifies water use, collects assessments, conducts studies, prepares an annual report of its findings and activities (which is submitted to the Court for annual approval), and records and reports water transfers and changes in ownership of groundwater rights to the Court.

The Judgment establishes a “Physical Solution” to correct the historic overdraft problems of the Basin and to manage and ensure adequate water supplies for the communities overlying the Basin. The Physical Solution is designed to allow all producers to pump as much groundwater as needed, while simultaneously protecting the Basin. This is

accomplished through the establishment of the Free Production Allowance (FPA) for each producer, which is recorded in Table B to the Judgment and the Annual Watermaster Reports. All water produced in excess of any producer's FPA must be replaced by the producer, either by payment to the Watermaster (MWA) of funds sufficient to purchase replacement water through a "replenishment assessment," or by the transfer of unused FPA from another producer within the same sub-area. Thus, the Judgment allows each producer to produce as much water as they need annually to meet their water demand requirements, so long as the producer purchases the requisite replacement water or additional FPA necessary to offset its production above its established FPA so that the Basin is perpetually protected.

Each producer's percentage share of FPA in a subarea was determined based on the producer's maximum annual water production (termed Base Annual Production, or "BAP") during the 5-year Base Period (1986-1990). Each producer's FPA is equivalent to a percentage of its BAP, as annually determined for each subarea. All allocations of FPA among producers are of equal priority.

The Court annually reviews and may adjust the FPA percentage within each subarea, as it deems necessary to protect the groundwater supplies within that subarea. The FPA for the Parties in the Centro Subarea, as established by the Final Judgment, was set at 80 percent, and has remained stable for more than a decade. It is reasonable that the FPA will be maintained at 80 percent of BAP in the Centro Subarea, at least in the near-term, as a result of slow growth and other environmental factors. The BAP for groundwater extraction from the Centro Subarea is 56,657 ac-ft/yr.

3.1 Mojave Water Agency/Watermaster

The MWA was founded July 21, 1960. The adjudication of the Mojave Basin was initiated by a lawsuit filed May 30, 1990. A Stipulated Judgment was filed with the Court on September 22, 1993 with a Final Judgment on January 10, 1996. After numerous appeals the Final Judgment in the Adjudication was entered August 21, 2000. The Final Judgment includes a Physical Solution to the allocation and conservation of water and provides the MWA certain powers and responsibilities including the power to ramp down (decrease the "free" portion of a party's BAP) on individual water users, charge fees for certain users under specified conditions and other powers related to implementation thereof. According to state law, the MWA is charged with the responsibility to "do any and every act necessary to be done so that sufficient water may be available for any present or future beneficial use of the lands and inhabitants within its jurisdiction." (www.mojavewater.org).

In October 1993, the MWA was appointed Watermaster by the Riverside County Superior Court for the purpose of administering and implementing the Stipulated Judgment, which set forth a groundwater allocation system for the Mojave Basin. All Producers in each Subarea are allowed to produce as much water as they need annually to meet their requirements, subject to compliance with the Physical Solution set forth in the Judgment. MWA was ordered by the Court to implement the Physical Solution to protect against overdraft. The Physical Solution's stated purposes are (1) to ensure that downstream

producers are not adversely affected by upstream use, (2) to raise money to purchase supplemental water for the area, and (3) to encourage local water conservation. The Physical Solution included authority to ramp down on the amount of water a producer could produce (withdraw) from the ground and provided the Watermaster with the ability to further ramp down production in the future.

The Watermaster's main responsibilities are to monitor and verify water use, collect assessments, conduct studies and prepare an annual report of its findings and activities to the Court as outlined in the Judgment. Additionally, the Watermaster acts as the clearinghouse for recording water transfers and it reports changes in ownership of Base Annual Production (BAP) rights to the Court. Performance of Watermaster duties requires the MWA to separately exercise its powers delegated by the Court under the Judgment from its other statutory powers. The Adjudication resulted in direction and authorities to MWA to assure that water usage within the Basin will be equitable as set forth in further detail in the following section, the MWA has the right to import water from the State Water Project and enter into agreements with other suppliers of water. Currently MWA is entitled to 82,800 AFY of SWP water and can purchase additional water from the SWP. In 1997 and 2009, MWA purchased such additional water. It is the stated goal of MWA to manage water resources through or in conjunction with the SWP to meet future demands while maintaining independence during periods of water shortages (MWA 2010 UWMP).

3.2 Climate Information

The Centro Sub Basin vicinity has cool winters and hot, dry summers. The Western Regional Climate Center web site (www.wrcc.dri.edu) maintains historical climate records for the past 30 years for Barstow, located within the sub-basin. Table 1-1 presents the monthly average climate summary based on these historical data for Barstow. In winter, the lowest average minimum monthly temperature is approximately 31 degrees Fahrenheit (°F), while the highest average maximum monthly temperature reaches approximately 102°F in the summer. Although precipitation can occur throughout the year, the rainy season is from November to March. Monthly precipitation during the winter months ranges from 0.55 to 0.75 inches. Average monthly precipitation during the summer months ranges from 0.08 to 0.32 inches. Low humidity occurs in the summer months from June to October. The hot and dry weather during the summer months results in moderately high water demand.

Table 1-1. Climate Data						
Month	Average Rainfall	Total	Average Temperature	Minimum	Average Temperature	Maximum
	(inches)		(°F)		(°F)	
January	0.75		31.2		59.7	
February	0.61		35.1		64.8	
March	0.62		39.4		69.9	
April	0.22		45.5		77.6	
May	0.08		52.5		86.1	
June	0.13		60.5		95.7	
July	0.28		66.9		102.4	
August	0.32		64.8		100.3	
September	0.26		58.2		94.0	
October	0.21		47.8		82.6	
November	0.36		37.0		69.2	
December	0.55		31.1		60.6	
Annual	4.39		47.5		80.2	

1. Averages based on 30-year data record (WRCC)

3.3 Existing Population and Water Demands

Population data for 2000 through 2010 were estimated by MWA on a subarea by subarea basis using the draft Southern California Association of Governments (SCAG) 2012 Regional Transportation Plan growth forecast (baseline of 2008), and it is predicated that the Mojave Water Agency service area will grow at a rate of approximately 2.5 percent per year from 2010 through 2035. The Centro Sub Basin service area is anticipated to have an annual growth rate of 2.0 percent through 2035, using the assumption that each of the subareas grow at the nearest city-wide rate within the sub basin region.

Projected population growth for Subarea Centro:

Year	2005	2010	2015	2020	2025	2030	2035	% Change
population	34,716	36,145	39,840	43,535	47,010	50,485	53,960	2.0%

2010 UWMP, Table 2-1.

Historical water usage, unlike population growth, does not demonstrate an upward trend, but actually shows a decrease in the last ten years of overall water usage within the Centro Subarea.

Total Demand for Subarea Centro (AFY)

Year	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Demand	30,695	26,127	26,946	24,534	24,399	22,563	24,313	26,262	26,843	25,644	25,071

2010 UWMP, Table 2-2

Actual production of Water for the Centro Subarea demonstrates a surplus of water produced for the same 10-year time period.

The Judgment separated the Mojave Basin Area into five Subareas, based upon a number of criteria. The HCF is located within the Centro Subarea. The Watermaster has issued seventeen Annual Reports pursuant to the Judgment. These Annual Reports summarize the information required by the Judgment and include a summary of the Watermaster activities and water supply conditions for the year including conditions by Subarea. The Watermaster's Annual Reports for the Centro Subarea from the last nine years are summarized in Table 1. The Table is limited to the last nine years because the Watermaster started including the surplus/deficit data utilizing current annual imports and consumptive use by Subarea nine years ago in the 2001-02 Annual Report (Watermaster Annual Reports Table 5-2). The Watermaster concluded the Centro subarea was in surplus for all nine years when measured against the long-term average natural supplies. The surplus ranged from a low of 4,000 AF in 2006-07 to a high of 6,300 AF in 2004-05. The surplus in the Centro Subarea has been steadily increasing over the past four water years

from 4,000 AF (2006-07), to 4,100 AF (2007-08), to 4,400 AF (2008-09), and to 4,700 AF (2009-10). The surplus is also greater in the most recent 2009-10 annual report (4,700 AF) than nine years ago in the 2001-02 annual report (4,100 AF). Overall, the surplus has remained constant and the amount of surplus far exceeds the HCF’s production demand of 1.1 AF per year. Although the Mojave Basin Area was legally found to be in a condition of “overdraft” when the Judgment was entered, it’s clear that the Centro Subarea is not presently in overdraft and in fact has had a surplus of water for the past nine years.

Table 1					
Summary of Mojave Basin Area Watermaster Annual Reports - Centro Subarea					
(All Amounts in Acre-Feet)					
Watermaster Report	Verified Production	Production Safe Yield	Surplus / (Deficit) ¹	Base Annual Production	Allowance (following year)
2009-10 (17)	21847	28100	4700	56269	45349
2008-09 (16)	22492	28445	4400	56269	45350
2007-08 (15)	23038	28691	4100	56269	45350
2006-07 (14)	23348	28901	4000	56269	45352
2005-06 (13)	21140	28093	5400	56657	45351
2004-05 (12)	19742	27595	6300	56657	45338
2003-04 (11)	22040	28478	4900	56657	45326
2002-03 (10)	21897	28450	5000	56657	45326
2001-02 (9)	24505	28801	4100	56657	45326

¹Table 5-2 - Subarea Hydrological Inventory Based on Long Term Average Natural Water Supply and Outflow and Imports and Consumptive Use

The Physical Solution established the initial FPA in the Centro Subarea at 80% in water year 1997-98. The Watermaster annually analyzes conditions in each Subarea and recommends to the Court any increase or further reduction in FPA. The Watermaster has not found it necessary to reduce the FPA (i.e., ramp down production) in the Centro Subarea from the 80% since the Physical Solution was put in place in 1997. The Physical Solution assures that available water is allocated amongst all producers in accordance with the Table B-1 recorded Base Annual Production rights, as adjusted by the court and set forth in the Watermaster Annual Reports, while attempting to preserve water resources. The following is from page 32 of the 2009-10 Watermaster Annual Report:

Watermaster recommends that FPA in Centro be left at 80% of BAP. There is a slight surplus in Centro as measured against the long-term average water supply. Water levels in wells in areas of heavy pumping around Barstow show a greater downward trend than other wells during periods of below average water supply but in the past have recovered during periods of storm flow. Although FPA exceeds the PSY in Centro, further Rampdown would be unnecessary given the fact that there is an apparent surplus when considering the long-term average water supply and current levels of pumping.

Watermaster will re-evaluate conditions in Centro annually and may recommend Rampdown in the future. (Emphasis added.)

3.4 Centro Subarea Production

The Watermaster Annual Reports include the verified production for each Subarea. A summary of verified production in the Centro Subarea over the past nine years can be found in Table 1. Verified production has remained relatively stable over the past nine years, however there has been a reduction of approximately 11% from the levels nine years ago when compared to 2009-10. In 2009-10 there was a verified production of 21,847 AF in the Centro Subarea and 131,069 AF in the entire Mojave Basin. The proposed production of 1.1 AFY at HCF will be about .0045% of the total water produced in the Centro Subarea – this figure is a statistically insignificant volume. To put this in perspective, water use in the single family residence sector in the Mojave Basin was 152 gallons per capita per day (GPCD) in 2010 (cite p ES-2 of 2010 WMP). Therefore, one house with 7 people living in it will use more water than the HCF. This single project that will consume less than .0045% of the water in the Centro Subarea and as such cannot have any statistically significant affect on the sustainability of the Subarea. In addition, the proposed HCF usage is statistically not significant when compared to the annual Watermaster Reports, which analyzes production volumes in tens of acre feet per year.

3.5 Centro Subarea Production Safe Yield

As described above, the Watermaster annually determines a PSY for each subarea based upon the annual reports from producers. The PSY in each subarea is equal to the average net natural water supply plus the expected return flow from the previous year's water production. Over the past nine years the PSY has been approximately 15-28% higher than the verified production (See Table 1). In other words, based on the Watermaster's calculations over the past nine years, the amount of water being used by producers is at least 15% less, and as high as 28% less, than the amount determined by the Watermaster to be safe to produce and still preserve all other production. These under-usages essentially increase the water available.

3.6 Centro Subarea Water Demand

In the Centro Subarea the available water as measured by the FPA set by the Watermaster far exceeds demand from producers. The FPA has remained steady at about 45,350 AFY over the past nine years (Table 1) while verified production has averaged 22,228 AFY over the same timeframe. There is a considerable amount of FPA that goes unused in the Centro Subarea each year. In other words, the usage of groundwater in the Centro Subarea is less than 50% of the total water available to produce for free by producers. This represents yet another surplus in available water in the subarea. It is extremely unlikely, but if the FPA is

exceeded additional water is available however it is not free and must be purchased. The demand is currently so low in the Centro Subarea that the current rate to lease an AF of water for one year is approximately \$50. The rate is very low due to the large supply and low demand of FPA in the area. These figures can be compared to the Alto Subarea where water is leased for approximately \$400 per AF per year. The Centro Subarea, unlike other subareas is not in overdraft but rather has a surplus of water.

3.7 Future Demand

Using historical water supply and demand data, population growth projections, as well as identifying proposed water use for all categories, including Single Family Residential, Multiple Family Residential, Industrial Users, Commercial Users, Institutional Users, Recreation, Minimal Producers, Golf Courses, Irrigation, Agriculture, and other uses including fire suppression and street cleaning other such requirements, the MWA prepared a forecast model for future demand. This future demand is in line with production demands for the 20 year forecast.

Future Demands for the Centro Subarea (AFY)

Year	2005	2010	2015	2020	2025	2030	2035
Demand	22,563	25,071	26,278	27,149	28,028	28,908	29,797

2010 UWMP Table 2-3

4 ADDITIONAL WATER SOURCES

4.1 State Water Project

The SWP is the nation’s largest state-built water development and conveyance system. Planned, designed, constructed and now operated and maintained by the California Department of Water Resources (DWR), this system provides water supplies for 25 million Californians and 750,000 acres of irrigated farmland. The SWP is a water storage and delivery system of reservoirs, aqueducts, power plants and pumping plants. Its main purpose is to capture and store water and distribute it to 29 urban and agricultural water suppliers in Northern California, the San Francisco Bay Area, the San Joaquin Valley, the Central Coast, and Southern California who have contracted with the SWP. As one of the state water contractors, MWA is currently entitled to receive an annual allotment of 82,800 AF of water from the SWP, dependent upon annual allocation. Imported water supplies available to MWA consist primarily of the SWP supplies.

According to the water supply contract between the DWR and MWA revised on October 12, 2009, MWA’s maximum annual entitlement from the SWP is 82,800 AFY from 2010 to 2014; 85,800 AFY from 2015 to 2019; and 89,800 AFY from 2020 to 2035. The water is transported to the Mojave Basin via the California Aqueduct. The annual allotment of

imported water will increase over time and is critical to the Mojave Basin meeting increases in demand in the future. The DWR determines how much each contractor is allotted each year. The amount of the allotment actually delivered varies from year to year but MWA typically assumes they will receive 61% (MWA 2010 UWMP).

The MWA calculates that current water supplies are sufficient to meet demands through 2035 and then until the year 2044, assuming SWP supplies remain constant at the 2035 availability (MWA 2010 UWMP). Additional information in regard to the SWP can be found in the WSA and WSA Addendum. By becoming one of 29 contractors to the SWP, MWA assured the addition of up to 82,800 AFY water allotment from the SWP should short falls occur in the Mojave Basin. The SWP water is critical to maintaining the sustainability of the Mojave Basin and is necessary to supplement the average natural supply of 54,045 AFY (MWA 201 UWMP page ES-3).

4.2 Mojave River Pipeline

The three-phased pipeline project was started in 1996 and completed in 2006 to deliver up to 45,000 AF per year to portions of the Mojave Basin Area. The 24-inch diameter pipeline serves all communities along the Mojave River and stretches approximately 76 miles from the California Aqueduct to recharge sites along the Mojave River. There are four groundwater recharge basins that have been constructed at Hodge, Lenwood, Daggett/Yermo, and Newberry Springs. These basins are active today and percolate SWP water underground into the Mojave Basin. In particular, the recharge basins located in Hodge and Lenwood would most directly recharge the Centro Subarea.

4.3 Other Water Sources

The MWA has a contract with the DWR which lists the maximum amount of water that MWA may request each year from the SWP. The amount of SWP water actually available and allocated to MWA each year varies. The MWA in fulfilling its mandate to assure sufficient water supplies to the region and has the authority to purchase water from other water suppliers. In 1997, MWA purchased 25,000 AFY from Berrenda Mesa Water District. In 2009, MWA purchased 14,000 AFY from Dudley Ridge Water District in Kings County, which will be transferred incrementally to MWA (MWA 2010 UWMP page 3-4). These MWA purchases are completed to ensure the sustainability of water resources in to the future for the Centro Subarea and the entire Mojave Basin.

5 ADJUDICATION – CONTROLS ON WATER USAGE

5.1 Physical Solution – Use of Water Within The Basin

The allocation of water in the Mojave Basin is governed by the results of an adjudication involving the MWA and various holders of water rights including municipal jurisdictions. See pages 3-6 of the Water Supply Assessment for a complete discussion of the Adjudication which was initiated in 1990, and led to a Stipulated Judgment in 1996 that established the Physical Solution. The precise purpose of the Physical Solution is to assure fair and equitable allocation of available groundwater implicit in which was the granting of numerous authorities to the MWA to control the use of available water. After various appeals, the Adjudication including the Stipulated Judgment became final in August 2000. The Physical Solution sets forth a detailed set of criteria and processes and grants regulatory powers to the MWA by which the available water in the Mojave Basin would be equitably distributed.

The Adjudication of the Mojave Basin Area allocated the right to produce water from the available natural water supply. Until the MWA initiated the Adjudication and the Court issued the Judgment, water production rights and obligations had not been defined in the Mojave Basin or existing rights were subject to water rights law. Any person or entity producing more than 10 AFY (producers of 10 AFY or less were termed Minimal Producers and dismissed from the Adjudication) within Mojave Water Agency boundaries is required to be bound by the terms of the Judgment. The Judgment sets forth a Physical Solution by which all producers must abide. Approximately 470 water producers are subject to the Physical Solution. Each is required to report their water production to the Watermaster and pay administrative and biological assessments on that production on a quarterly basis. The Physical Solution requires that each Producer's Base Annual Production (BAP) may be subject to ramp down and provides for a scheduled reduction in pumping with the intent of balancing water production with the available supply (including any purchased supplemental water supply). The Physical Solution established Subareas, and to maintain water balances within each Subarea, it established a decreasing Free Production Allowance (FPA) in each Subarea during the first five years. The FPA for each Subarea is reviewed annually thereafter. The FPA is allocated among the Producers in the Subarea based on each Producer's percentage share of the FPA. All water produced in excess of any Producer's share of the FPA must be replaced by the Producer, either by payment to the Watermaster of funds sufficient to purchase Replacement Water, or by transfer of unused FPA from another Producer.

The Watermaster determined the BAP by verifying production by each user between the years 1986 to 1990. Each producer has a BAP right to the FPA within each subarea. The FPA is the total amount of water that may be produced from a subarea in a given year without the obligation to pay for replacement of water that exceeds the FPA. Each

subarea's production safe yield (PSY) is defined as the highest average annual volume of water that can be produced from a subarea without resulting in a long-term net reduction of groundwater in storage in the subarea. Based on actual water level data, the PSY level may be incrementally increased or decreased year to year. The Adjudication management goal is to bring the FPA to within 5% of the PSY. Production in excess of the FPA is subject to a replacement obligation, which is a fee designed to fund the purchase of replacement water in the amount in excess of the FPA. If groundwater levels are stable, the ramp down requirement to bring the FPA to within 5% of PSY may not be triggered. The Physical Solution set the FPA in the Centro Subarea at 80% in water year 1997-98. The Watermaster annually analyzes conditions in each Subarea and recommends to the Court any increase or further reduction in FPA. The Watermaster has not found it necessary to reduce the FPA (ramp down production) in the Centro Subarea from the 80% since the Physical solution was put in place. The Physical Solution assures that available water is equitably allocated amongst all producers.

5.2 Minimal Producer Program and Stipulation in Intervention

The Judgment established a category called Minimal Producer to include producers that pump 10 AFY or less. Accordingly Minimal Producers were dismissed from the litigation leading to the Judgment but the Court required that a Minimal Producer Program be established by the MWA. This Program achieves an equitable allocation of the costs of the Physical Solution that are attributable to production by Minimal Producers. MWA passed Ordinance 11 to specifically address Minimal Producers. The MWA determined that there was sufficient water for existing Minimal Producers but Ordinance 11 was established to regulate new Minimal Producers after April 1, 2000, the date chosen for administrative convenience. Minimal Producers are not subject to the ramp down provisions of the Physical Solution, but must pay an annual fee. The HCF fits the definition of a Minimal Producer as defined by the Judgment and therefore is subject to MWA Ordinance 11 which applies to new Minimal Producers after April 1, 2000. A Minimal Producer fee is permitted pursuant Ordinance 11 to purchase supplemental and replenishment water. MWA has the ability to raise or lower this fee as necessary. In addition, taxes are paid by parcel owners in the Mojave Basin to the MWA for their services. Therefore the HCF will be regulated by MWA under Ordinance 11 and under the Ordinance the MWA receives additional funds for the purchase of imported water from whatever source.

Alternatively, Section V.F.40 of the Final Judgment expressly permits any person or entity who is not yet a Party or a successor to a Party to the Judgment, and who proposes to produce water from the Mojave Basin Area, to become a Party to the Judgment, by entering into a Stipulation for Intervention with the Watermaster. When submitted to and approved by the Court, the intervenor becomes a Party to the Judgment, and is bound by all provisions of the Judgment and entitled to all of the rights and privileges accorded under the Physical Solution provisions thereof. The purpose of the Stipulation for Intervention is to bring all production under the umbrella of the Judgment and Physical Solution, and to provide a mechanism for the Watermaster to assess such future production in order to facilitate the acquisition of an amount of SWP water at least equal to that produced by the

intervenor, less any FPA acquired by the intervenor. If a person or entity intervenes without having purchased existing “Table B” Base Annual Production Rights, the intervenor is required to pay the Watermaster the going published rate for all production; whereas, if a person or entity intervenes with existing “Table B” Base Annual Production Rights, the intervenor is required to pay the Watermaster for only that portion of its production that exceeds the Free Production Allowance portion of the acquired existing “Table B” Base Annual Production Rights. As a contractor to the State Water Project, MWA has the right to import water from its allotment, to assure the availability of water in the Mojave Basin. MWA utilizes the funds paid to the Watermaster by the intervenor to purchase and import like quantities of the un-entitled water produced by the intervenor from the State Water Project. Currently MWA is entitled to 82,800 AFY of State Water Project (SWP) water. MWA also has negotiated with other water sources and purchases additional water as needed as was done in 1997 and 2009.

HCF has entered into a Stipulation for Intervention with the Watermaster, which Stipulation is pending submission to the Court for approval. A copy of the Stipulation for Intervention is attached hereto. As a Stipulating Party to the Judgment and Physical Solution, HCF is required to comply with all of the provisions of, and entitled to all of the rights and benefits under the Judgment, including the right to produce water from the Centro Subarea, subject only to the obligation to pay the Watermaster those funds mandated under the Judgment, with which the Watermaster will purchase a like amount of State Project Water. As a result of the Stipulation for Intervention, and the payment of assessments to the Watermaster, HCF's production will result in a “net zero impact” to the water supply of the Centro Subarea.

5.3 Transfers of Base Annual Production Rights

The Final Judgment, at Section V. E., also permits any person or entity, whether or not yet a Party or successor or to a Party to the Judgment, to purchase or otherwise acquire (pursuant to the Rules and Regulations of the Watermaster) any existing “Table B” Base Annual Production Rights of an existing Party to the Judgment. The “transfer” of existing “Table B” Base Annual Production Rights facilitates the production of water by different parties without causing any net increase in the permitted production within a subarea, because the transferor loses the ability to produce an equal amount of water to that acquired by the transferee. HCF is in the process of negotiating the acquisition of sufficient existing “Table B” Base Annual Production Rights from an existing “Table B-1” rights holder from within the Centro Subarea. When that acquisition is complete, HCF will be listed on Table B-1 to the next Watermaster Annual Report as the holder of a quantified Base Annual Production Right within the Centro Subarea; and will be entitled to all of the rights and benefits thereof, including the right to produce such water as it requires for the Project.

6 Future Projects to Augment Basin Groundwater Reliability

6.1 Future SWP Supplies

The Project will receive all of its water supply from groundwater from the Centro Subarea, which is replenished by local rainfall and with imported water delivered by MWA. Groundwater reliability is based on FPA within the Centro Subarea, and the numerous current and planned projects in the Mojave Basin designed to increase the reliability of the groundwater supply.

Imported water to the Mojave Basin is supplied by MWA, a SWP contractor. It possesses a contract entitlement with the SWP for delivery of up to 82,800 ac-ft of water per year. MWA has provided reliability projections for SWP imported water through 2035 (MWA 2010 UWMP). Estimates of long-term system-wide SWP reliability ranges from 60 percent currently to 61% percent in 2029, and could rise to 75% in 2035 with the implementation of the Bay Delta Conservation Plan. This SWP water can be delivered to the Centro Subarea through the recently completed 76-mile Mojave River Pipeline, which connects the SWP to the Centro Subarea and beyond. Although MWA may experience occasional SWP deliveries below the long term projected average, the Mojave Basin can be relied upon as a source of water throughout drought periods. Because of the size and character of the Basin, the Basin is large enough to sustain production quantities in excess of recharge for multiple years without material changes in water levels so long as long-term recharge quantities offset outflows from the Basin.

With a small exception, MWA's SWP entitlement has not been pre-allocated among the Basin's subareas. It is therefore appropriate to assume, based upon MWA's projections within the 2010 UWMP, that MWA will be able to replenish any overproduction from the Basin, including the Centro Subarea, through 2035.

6.2 Conservation

As described briefly above, the MWA exercises a broad range of regulatory and conservation authorities including those granted under the Litigation. Another step that MWA has taken to help balance the High Desert's water "budget (that is assure continuing source of water)," is through water conservation. MWA's Regional Water Management Plan calls for a reduction in the water consumption of 10% in the Mojave Basin by the year 2020 through water conservation measures. Water use in the Single-Family Residential (SFR) use sector decreased in the Mojave Basin area from 214 GPCD in 2000 to 152 GPCD in 2010. This significant reduction in per-capita use in the Mojave Basin over the past decade illustrates the effectiveness of conservation programs. Even with the past reductions, MWA believes there remains a substantial potential for further reductions in SFR per-capita use in the future (MWA 2010 UWMP page ES-2)

In 2006, MWA also became a signatory to the Memorandum of Understanding Regarding Water Conservation in California (MOU) of the California Urban Water Conservation Council (CUWCC). By signing the MOU, water purveyors agree to undertake certain Best Management Practices (BMPs) that result in reductions in urban water demands. The program conducted by GSWC for the Barstow CSA includes the following BMPs:

- Water survey programs for single-family residential and multi-family residential connections;
- Residential plumbing retrofit;
- System water audits, leak detection and repair;
- Large landscape conservation programs and incentives;
- Conservation programs for commercial, industrial, and institutional accounts; and
- Residential Ultra Low Flush Toilet (ULFT) replacement programs.

Implementation of these BMPs is anticipated to result in a total cumulative reduction in overall water demand. Since 2000, per capita use has dropped by about 33 percent, resulting in municipal production falling by approximately 7 percent, or 6,700 AFY between 2000 and 2010 despite a rise in population of nearly 40 percent. Calculations set forth in Figure 7-1 of the 2010 UWMP indicate that water conservation efforts through the implementation of BMPs and educational programs has saved about 850 AFY since August 2008 alone. It is estimated that by the year 2035, the implementation of conservation efforts will have resulted in a savings of 42,300 AFY, as compared to water demands that would have occurred without these water conservation measures in place.

6.3 Regional Recharge and Recovery Project

The Regional Recharge and Recovery Project, known as “R³,” is part of a comprehensive solution developed by the MWA and the regions stakeholders to further ensure a sustainable water supply. The R³ project is a regional \$48 million project that will store and deliver imported SWP water. Once completed, the Prop. 50 funded R3-Project will provide the facilities necessary to purify and store over 40,000 acre-feet, or 13 billion gallons, of imported SWP water. Although MWA has replenished the region’s groundwater with over 300,000 acre-feet since 1991, R3 will be the agency’s first project that will allow MWA to withdraw and use the stored water from a constructed facility and further expands their options for the purchase, storage and allocation of imported water. (Table 3-2, 2010 UWMP.) Planning for the project began in 2004, with the Agency securing some of the necessary funding from Proposition 50 in 2007. MWA hopes to have the R-3 project up and running in the near future.¹

¹ <http://r3project.com/LinkClick.aspx?link=67&tabid=36>

6.4 Treated Wastewater Effluent

Treated wastewater effluent is available from a number of agencies within the MWA service area. Treated wastewater as a source of supply has the advantage of consistently being available during any type of single-dry, or multiple-dry year. The 2010 UWMP discusses the water agencies and cities planning wastewater facilities in Chapter 4.

Even though MWA currently has no rights to any of the treated wastewater or recycled water, the regional water supply balance still benefits from these supplies because the groundwater basin is a closed system. The 2009 production of wastewater treatment plants totaled approximately 22,068 AFY within the MWA service area, with the majority used to recharge the groundwater basins. This supply of treated wastewater is projected to increase to 62,843 AFY by 2035. (2010 UWMP 6.3.2.3).

6.5 Planned Banking

During normal and wet years, MWA delivers SWP water in excess of local demands and stores the surpluses as part of the groundwater storage program. Currently, the MWA Centro Subarea has 17,377 AFY stored water, while the MWA total amount of stored water equals 95,454 AFY of banked water, with an additional 45,997 AFY of water stored by Retailers of the MWA. (2010 UWMP Table 3-13).

7 Reliability Planning

Water Code Sections 10910 and 10911 require an assessment of water supply reliability and vulnerability to seasonal or climatic shortage. Reliability is a measure of the anticipated capability of a water service system to manage water shortages. This assessment must include a comparison of the total projected water demand with the supply available during the following hydrologic conditions: (1) normal water year; (2) single dry water year; and (3) multiple dry year sequences. This assessment is summarized in the following tables taken from the 2010 UWMP. As shown by the Tables, the MWA has adequate supplies to meet demands during average, single-dry, and multiple-dry years throughout the 20-year planning period.

PROJECTED AVERAGE/NORMAL YEAR SUPPLIES AND DEMAND (AFY)

Water Supply Source	2010	2015	2020	2025	2030	2035
Existing Supplies						
Wholesale (Imported)						
SWP ^(a)	49,680	51,480	53,880	53,880	54,778	54,778
Local Supplies^(a)						
Net Natural Supply	54,045	54,045	54,045	54,045	54,045	54,045
Agricultural Depletion from Storage	10,425	10,425	10,425	10,425	10,425	10,425
Return Flow	62,220	67,766	71,353	76,862	82,364	87,857
Wastewater Import	5,304	5,397	5,491	5,789	6,087	6,385
Groundwater Banking Projects ^(b)	0	0	0	0	0	0
Total Existing Supplies	181,674	189,113	195,194	201,001	207,698	213,490
Total Estimated Demands^(c)	151,885	163,161	170,496	181,740	192,969	204,181

Notes:

- (a) Taken from Chapter 3 Water Resources, Table 3-1.
- (b) Not needed during average/normal years.
- (c) See Chapter 2 Water Use, Table 2-3, assuming "moderate" conservation.

2010 UWMP Table 6-3

PROJECTED SINGLE-DRY YEAR SUPPLIES AND DEMAND (AFY)

Water Supply Source	2010	2015	2020	2025	2030	2035
Existing Supplies						
Wholesale (Imported)						
SWP ^(a)	5,796	6,006	6,286	6,286	9,878	9,878
Local Supplies^(b)						
Net Natural Supply	54,045	54,045	54,045	54,045	54,045	54,045
Agricultural Depletion from Storage	10,425	10,425	10,425	10,425	10,425	10,425
Return Flow	62,220	67,766	71,353	76,862	82,364	87,857
Wastewater Import	5,304	5,397	5,491	5,789	6,087	6,385
Groundwater Banking Projects ^(b,c,d)	29,284	35,838	39,946	46,507	49,467	56,009
Total Existing Supplies	167,074	179,477	187,546	199,914	212,266	224,599
Planned Supplies						
Groundwater Banking Projects ^(e)	0	0	0	0	0	0
Total Supplies	167,074	179,477	187,546	199,914	212,266	224,599
Total Estimated Demands^(f)	167,074	179,477	187,546	199,914	212,266	224,599

Notes:

- (a) SWP supplies are calculated by multiplying MWA's Table A amount by percentages of single-dry deliveries projected to be available for the worst case single dry year of 1977 (7% in 2009 and 11% in 2029), taken from Tables 6.40 and 6.13 of DWR's 2009 SWP Reliability Report.
- (b) Taken from Chapter 3 Water Resources, Table 3-1.
- (c) Assumed 100% available during single-dry year. Refer to Section 6.3.2.
- (d) Existing banked SWP water in MWA groundwater storage accounts (See Section 6.3.3 and Table 3-13). This does not include any retailers' stored water. Amounts reflect stored water needed to meet demand after all other supplies are used.
- (e) Planned banked supplies are not needed under a single-dry year scenario (current banked amounts are sufficient to meet demands).
- (f) See Chapter 2 Water Use, Table 2-3, assuming "moderate" conservation. Also assumes increase in total demand of 10 percent during dry years.

2010 UWMP Table 6-4

TABLE 6-5
PROJECTED MULTIPLE-DRY YEAR SUPPLIES AND DEMAND (AFY)

Water Supply Source	2010	2015	2020	2025	2030	2035
Existing Supplies^(a)						
Wholesale (Imported)						
SWP ^(b)	28,152	29,172	30,532	30,532	31,430	31,430
Local Supplies ^(c)						
Net Natural Supply	54,045	54,045	54,045	54,045	54,045	54,045
Agricultural Depletion from Storage	10,425	10,425	10,425	10,425	10,425	10,425
Return Flow	62,220	67,766	71,353	76,862	82,364	87,857
Wastewater Import	5,304	5,397	5,491	5,789	6,087	6,385
Groundwater Banking Projects ^(c,d,e,f)	6,928	12,672	15,700	22,261	23,864	23,864
Total Existing Supplies	167,074	179,477	187,546	199,914	208,215	214,006
Planned Supplies						
Groundwater Banking Projects ^(g)	0	0	0	0	4,051	10,593
Total Supplies	167,074	179,477	187,546	199,914	212,266	224,599
Total Estimated Demands^(h)	167,074	179,477	187,546	199,914	212,266	224,599

Notes:

- (a) Supplies shown are annual averages over four consecutive dry years (unless otherwise noted).
- (b) SWP supplies are calculated by multiplying MWA's Table A amount by percentages of multiple-dry deliveries projected to be available for the worst case four-year drought of 1931-1934 (34% in 2009 and 35% in 2030), taken from Tables 6.4 and 6.13 of DWR's 2009 SWP Reliability Report.
- (c) Taken from Chapter 3 Water Resources, Table 3-1.
- (d) Assumed 100% available during multiple-dry year. Refer to Section 6.3.2.
- (e) Existing banked SWP water in MWA groundwater storage accounts (See Section 6.3.3 and Table 3-13). This does not include any retailers' stored water. Amounts reflect stored water needed to meet demand after all other supplies are used.
- (f) Assumed a maximum of 25% available during multiple-dry year. Based on total amount of storage available divided by 4 (4-year dry period).
- (g) Amounts reflect additional banked supplies needed to meet a multiple-dry year scenario. MWA will continue to bank SWP supplies to meet dry-year needs as identified in the UWMP and in accordance with its Water Banking Policy (see Sections 3.5.3 and 6.3.4). Planned water supply projects will contribute to MWA's increased ability to bank SWP water in the future (see Section 3.6 and Table 3-14).
- (h) Chapter 2 Water Use, Table 2-3, assuming "moderate" conservation. Also assumes increase in total demand of 10 percent during dry years.

2010 UWMP Table 6-5

8 Summary of the 2010 MWA Final Urban Water Management Plan (UWMP)

Water demands and supplies were evaluated by MWA for 50 years or until the year 2060. This is beyond the 20-year planning horizon required by the California Urban Water Management Planning Act (Act). The Act requires each urban area to develop a water management plan that:

- Accomplishes water supply planning over a 20-year period in five year increments.
- Identifies and quantifies adequate water supplies, including recycled water, for existing and future demands, in normal, single-dry, and multiple-dry years.

- Implements conservation and efficient use of urban water supplies. Significant new requirements for quantified demand reductions have been added by the enactment of SBX7-7, which amends the Act.

In short, the Urban Water Management Plan (Plan) answers the question: Will there be enough water for the communities within the MWA's boundaries in future years, and what mix of programs should be explored for making this water available?

The stated goal of MWA is to manage water resources through or in conjunction with the SWP to meet future demands while maintaining independence during periods of water shortages. Based on conservative water supply and demand assumptions over the next 25 years in combination with conservation measures including control of non-essential demand during certain dry years, the Plan successfully achieves this goal. It is important to note that the Plan was been completed to address regional resource management and does not address the particular conditions of any specific retail water agency or entity within the MWA service area. The retailers within MWA service area are preparing their own separate UWMPs, but MWA has coordinated with the retailers during development of this Plan to ensure a level of consistency with the retailers (MWA 2010 UWMP page 1-2).

The Plan for the MWA wholesale service area is a planning tool that guides the actions of the water management agency and meets the statutory requirement of providing long term plans and projections for water usage. The Plan makes clear that the MWA has evaluated current FPA levels and water levels within the Centro Subarea and all other Subareas of the Basin. MWA utilizes the Judgment as a protective tool to ensure the sustainability of water.

The Plan states the following in regards to sustainability (MWA 2010 UWMP page 3-26):

MWA is actively operating recharge sites for conjunctive use along the Mojave River Pipeline and Morongo Basin Pipeline. Recharge sites including Hodge, Lenwood, Daggett, Newberry Springs, and Rock Springs Outlet provide MWA with the ability to recharge SWP water into subareas where replacement water is purchased. These sites also provide MWA with the ability to bank excess SWP water as available. Water levels within each of the five subareas are evaluated as part of the Watermaster's investigation into subarea conditions and recommendations on FPA. The Judgment does not specifically require that Watermaster consider changes in water levels in its investigation but Paragraph 24 (o) of the Judgment requires Watermaster to consider changes in water in storage. Rising and falling water levels within the Mojave Basin Area are indications of changes in storage over time. If after full implementation of the Judgment, water levels continue to fall in certain parts of the Basin Area, the Court, at Watermaster's recommendation may direct recharge or reductions in water production as necessary to achieve long term sustainability. Such action is not anticipated given the current projections of use and availability of supplemental water to MWA. However, the Judgment is a protective tool to protect sustainability."

The Plan calculates a water demand for the Centro Subarea thru 2035. In 2035 the projected water demand is 29,787 AFY (MWA 2010 UWMP page 2-8). As discussed previously, FPA, or water available for free production, has remained steady in the Centro Subarea at about 45,350 AFY over the past decade since the Physical Solution was initiated. Using the MWA projected water demands, in 2035 there will be a continuing surplus of approximately 35% of FPA that goes unused in the Centro Subarea. The surplus within the Centro Subarea will continue until 2035 and the water supply is sustainable. The 2010 MWA Plan then calculates beyond the required year 2035 for informational purposes and projects the sustainability of water resources until at least 2044.

9 CONCLUSION

The HCF will produce up to 1.1 AF per year from the Centro Subarea of the Mojave Basin. Although the Mojave Basin Area is, at times, characterized as being in “overdraft,” it is clear that the Centro Subarea is not in actual overdraft and in fact has had a surplus of water for the past nine years. The available supply annually exceeds the actual production, and the MWA has undertaken numerous actions to assure the sustainability into the future. The amount of water available is sustainable at least until 2044 according to MWA planning and projects that current water supplies are sufficient to meet demands through the year 2044. The HCF production of 1.1 AFY equals less than 0045% of the water usage in the Centro Subarea where all records are kept in 10s of AFY and as such the HCF usage is less than the statistical significance of all calculation of water availability. The Centro Subarea of the Mojave Basin is in surplus and has not been in deficit for the last nine years since the Watermaster starting reporting the data in Table 5-2 of the annual report, unlike some of the other Subareas in the Mojave Basin.

The annual Watermaster reports for the years 2001-02 to 2009-10 conclude that there is a physical surplus in the Centro Subarea ranging from 4,000 AF per year to 6,300 AF per year. Using the MWA projected water demands, in 2035 there will be approximately 35% of FPA that goes unused in the Centro Subarea. Finally, the MWA is legally entitled to obtain water from the State Water Project and has been acquiring additional SWP water to ensure water resources are sustainable. Current MWA projects are in place to bring SWP water to the Mojave Basin including the Centro Subarea. In addition, local water conservation efforts and future management of the Centro Subarea implemented by the Watermaster and required by the Court Judgment help assure the sustainability for sufficient water. A separate program applicable to the Minimal Producers such as HCF, which produce 10 AFY or less and initiated production after year 2000, collects fees so as to allow the purchase of yet additional make up water as needed.

REFERENCES

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Appendix A

Appendix B

Appendix C

Appendix D

Appendix E

Appendix F

Appendix G