

STATE OF CALIFORNIA
STATE WATER RESOURCES CONTROL BOARD

In the Matter of:)
HEARING RE: THE PROPOSED)
REVOCATION OF U.S. BUREAU OR)
RECLAMATION PERMITS FOR)
AUBURN DAM PROJECT)
(Applications 18721, 18723, 21636 and 21637))
)

TESTIMONY OF
C. MEL LYTLE

I am C. Mel Lytle, Ph.D. I am appearing today on behalf of the County of San Joaquin and the San Joaquin County Flood Control and Water Conservation District (collectively hereinafter “County”). I am also appearing on behalf of the South Delta Water Agency (“South Delta”) and the exhibits presented in my testimony are exhibits for both the County and South Delta. I have been the Water Resource Coordinator for the County of San Joaquin, Department of Public Works, since February of 2002. I have Bachelor’s and Master’s degrees in Agronomy and a Ph.D. in Botany. I am a Post-doctoral fellow of the University of California Berkeley.

I. Description of San Joaquin County

San Joaquin County is located at the northern end of the San Joaquin Valley in Central California. San Joaquin County's population currently totals over 660,000 people. By the year 2030, the population is expected to increase by approximately 77 percent to 1.1 million. San Joaquin County is estimated to be the 3rd fastest growing County in California. The County encompasses nearly 920,000 acres of relatively level productive lands with 85% of the County's 1423 sq. miles being used for agriculture. The County sustains a \$1.75 billion agricultural economy. Historically, San Joaquin has been one of California's leading counties in gross value of agricultural commodities. In addition, industries that depend strongly on agriculture, such as

food processing, wholesale trade, and transportation, benefit from San Joaquin's bounty. The preservation of agricultural land is a key economic and quality of life component for the County. Water demand in the County is approximately 1,600,000 acre-feet per year of which 60 percent is provided by groundwater.

The County is bordered on the east by the Sierra Nevada foothills, and the western portion includes almost half of the Sacramento-San Joaquin Delta. The San Joaquin River flows south to north through the County, and the Mokelumne, Calaveras, and Stanislaus Rivers flow east to west through the County and into the Delta.

II. Water Districts and Water Supply within San Joaquin County

San Joaquin County is made up of various water interests, ranging from municipalities to large irrigation districts to smaller landowner districts. The surface water available to these various interests is limited, and in many cases is only an interim supply.

Stockton East Water District ("SEWD") serves the agricultural area to the east of the City of Stockton and provides treated drinking water for the urban area of Stockton. It receives a water supply from the Calaveras River, at New Hogan Dam, based upon a 1970 contract with the U.S. Bureau of Reclamation. Stockton East Water District more recently constructed a diversion structure and a series of canals and tunnels to bring New Melones water from the Stanislaus River to Eastern San Joaquin County, which will make available to the urban area of Stockton an additional supply of treated water. This conveyance project which was partially complete in 1994 cost over 65 million dollars and has made only limited deliveries of interim water to Stockton East Water District.

This system also serves to wheel Stanislaus River water to the Central San Joaquin Water Conservation District ("Central"), a neighboring agricultural water district. Although Central has

a firm contract of approximately 50,000 acre feet from the Stanislaus River it also has received only a limited amount of water deliveries each year.

Oakdale Irrigation District and South San Joaquin Irrigation District both located in the south eastern portion of the County have pre-1914 appropriative rights and other rights to a supply from the Stanislaus River. A portion of these districts water is currently being utilized by contract by other districts and cities within the County, including SEWD and the City of Stockton, as well as the cities of Lathrop, Manteca and Tracy.

The North San Joaquin Water Conservation District (North San Joaquin) has a small interim supply of water from the Mokelumne River based on a contract with the East Bay Municipal Utility District (EBMUD). On March 18, 2008 the State Water Board issued Order WR 2008-0016 granting North San Joaquin's time extension to place this water to beneficial use. The State Water Board's decision to grant the time extension "principally rests on the public interest in addressing the critical overdraft condition in the Eastern San Joaquin groundwater basin." [SJC-3, p. 10.]

Woodbridge Irrigation District receives a supply from the Mokelumne River based on pre-1914 and other rights.

In the western part of San Joaquin County, various districts receive a supply from the State Water Project (SWP) and from the Central Valley Project (CVP). Other water users in the western portion of the County divert from the San Joaquin River and other channels of the Delta.

The remainder of the County's water supply, including much of the water needed to satisfy the growing urban needs, is extracted from the groundwater basin. All seven cities within the County pump groundwater. A significant portion of the needs of the urban areas of Stockton are met from treated surface water supplied by the Stockton-East Water District. However, in

dry years much of the water supply for the Stockton urban area, which contains over 300,000 people, must come from groundwater.

It is often suggested that water demand could be controlled by controlling urban growth. This would not help in our situation, since the County is already fully developed whether in agriculture or as an urban area. The water demands are roughly the same for both agriculture and urban use. While we are experiencing some limited growth in irrigated agriculture, our County has neither the legal mechanism nor the desire to prohibit agriculture. In addition, urban development must demonstrate an available water supply. Past groundwater studies in the region show that the maximum, sustainable, long-term yield from the aquifer is 0.75 to 1 acre-foot per acre per year. The City of Stockton has adopted a 0.6 af, per acre, per year, as the target groundwater extraction rate for urban development in order to combat historic overdraft conditions and the intrusion of saline groundwater into the underlying Basin.

III. San Joaquin County's Water Use and Critically Overdrafted Groundwater Basin

The groundwater basin is not in a condition to meet the current demand put on it. The Eastern San Joaquin County Groundwater Basin ("Basin") has been the subject of much concern in the past. The Basin was identified in 1980 in the California Department of Water Resources Bulletin 118-80 as one subject to "critical conditions of overdraft." In addition, this critically overdrafted groundwater basin suffers from the migration of an ancient saline deposit underlying the Delta. Bulletin 118-80 described this situation as follows:

"This basin for many years has experienced overdraft, the adverse effects of which include declining water levels that have induced the movement of poor quality water from the Delta sediments eastward near the City of Stockton. Migration of these saline waters has severely impacted the utility of ground water in the vicinity of Stockton. Wells have been abandoned and replacement water supplies have been obtained by drilling additional wells generally to the east." [SJC - 4, Page 44.]

The County's historical and continual reliance on groundwater has resulted in significant overdraft of the groundwater basin of up to approximately 150,000 acre-feet annually, and is projected to increase to a deficit of approximately 175,000 acre-feet annually, if nothing is done to correct this problem.

Additionally, as a byproduct of the overdraft conditions, salt water has intruded into the groundwater basin from an ancient saline deposit underlying the Delta. Projections indicate that the migration of the saline front is approximately 150 to 250 feet a year. Long-term groundwater overdraft has lowered the groundwater table by two feet per year in some areas to 70 feet below mean sea level. This has induced the intrusion of highly saline groundwater into the groundwater basin from the west. Continued pumping of groundwater and deterioration of water quality in the basin threaten the long-term viability of groundwater use within the County.

The County recognizes that without the development of a comprehensive groundwater conjunctive-use program, such salt water intrusion will degrade the groundwater in portions of the basin and render the groundwater supplies unusable for municipal and agricultural purposes. The County is making all efforts to address this problem.

IV. Efforts to obtain supplemental surface water supplies

The County and local water interests have long recognized the need to decrease reliance on groundwater. County entities have attempted to secure reliable surface water supplies for many years. However, these efforts have been largely fruitless.

Despite the fact that four major river systems flow through the County (the Mokelumne, Calaveras, San Joaquin, and Stanislaus Rivers), much of the water is exported to meet the increasing urban needs of those outside of San Joaquin County. Due to this lack of adequate

surface water supply, County water purveyors have had to rely heavily on groundwater to supply both the County's agricultural needs and, more recently, rapidly expanding urban needs.

Groundwater currently accounts for about 60 percent of the County's water supply, with some communities, such as Lodi, relying entirely on groundwater for their drinking water supply.

In significant part, the County's lack of adequate surface water supply stems from the interplay between several state and federal actions, which collectively directed the County to pursue the American River as the most economically viable source of surface water upon completion of the Folsom South Canal. However, the Folsom South Canal extension into San Joaquin County was never constructed, thus precluding San Joaquin County from receiving American River water as the State and the Federal Bureau of Reclamation intended. Meanwhile valuable opportunities for other water supplies were lost.

Please see testimony of James C. Hanson [SJC-10] for a detailed description of the decisions by the State Board, directing the County to the American River and precluding the County from obtaining a reliable water supply from other sources. These State Water Board actions have included, in part, the following: The State Board's Decision 858 (1956), which denied North San Joaquin a permanent right for Mokelumne River water and directed the County to seek water from the American River [SJC-13.]; Decision 893 (1958) which denied four County entities water right permits from the American River in favor of the Bureau of Reclamation, and directed the Bureau and the County entities to contract for water service from the Bureau for American River water [SJC-14]; Decision 1356 (1970) in which the State Water Board granted American River water rights to the Bureau, and included discussion and acknowledgement of the watershed protection priorities of the County of San Joaquin, and the Bureau's intent to provide water-service contracts with County entities [SJC 16, 17]; Decision

1422 (1973) regarding the Bureau permits for the New Melones Project on the Stanislaus River, in which Bureau witnesses testified that the County would ultimately be served from the American River.

V. Countywide Water Management Planning

1. DWR Integrated Storage Investigation Program

In an effort to meet the long-term County water-supply demands, and to respond to the complex water-related issues related to the water supply, the County recognized that a comprehensive water management strategy was necessary in order to successfully manage the limited available water resources, and coordinate the many water agencies within the County. In furtherance of this objective, in April 2000, the County and the Department of Water Resources (“DWR”) entered into a Memorandum of Understanding (“MOU”), whereby the County and DWR agreed to work cooperatively to formulate a conjunctive water management program. The program would identify feasible initiatives, programs, or projects that would effectively manage the surface water and groundwater resources within San Joaquin County.

Since 2000, DWR has worked with the County and the Northeastern San Joaquin County Groundwater Banking Authority (“GBA”) to provide a consensus-based forum for local public water interests to work cooperatively with one voice to study, investigate, and plan locally supported conjunctive use projects in the Eastern San Joaquin County. San Joaquin County has made substantial progress related to water resources planning and continues to build on the momentum gained by local achievements in such endeavors through the GBA.

This MOU process commenced the County’s ongoing relationship with DWR, which continues today and which includes receipt of financial support from DWR to develop the

County's regional water supply and related planning documents. Tasks associated with the MOU signed in 2000 include the following:

- The County established an Advisory Committee that includes representation by all water interests within the County, to provide technical and policy direction regarding viable conjunctive water management programs.
- Provides input to the current groundwater/surface water management planning process.
- Identifies potential conjunctive water management projects in the Eastern San Joaquin Basin that help address local water supply issues and needs, while concurrently helping improve the State's overall dry year water supply reliability, consistent with the San Joaquin County Groundwater Export Ordinance.
- As part of the programmatic feasibility evaluation process, conducts a preliminary environmental review, identifying the impacts of potential projects or programs, including possible measures that could avoid or mitigate the impacts.
- As part of the programmatic feasibility evaluation process, outline Basin conjunctive water management principles and operating criteria.
- Draft a programmatic basin management evaluation, identifying specific conjunctive water management project and program options for the Basin, and recommending an action plan for future Phases.

Since the establishment of the MOU with DWR in 2000, DWR has provided substantial ongoing support, including financial support, to the water resource planning and project development.

2. Establishment of Northeastern San Joaquin County Groundwater Banking

Authority (“GBA”)

The Northeastern San Joaquin County Groundwater Banking Authority (“GBA”) is a joint powers agency which was formed in 2001 and which includes all of the water agencies within the northeastern portion of San Joaquin County including the following eleven entities: The cities of Stockton and Lodi, California Water Service Company, Central Delta Water Agency, South Delta Water Agency, Central San Joaquin Water Conservation District, Stockton East Water District, North San Joaquin County Water Conservation District, Woodbridge Irrigation District, the County of San Joaquin, and Associate Member San Joaquin Farm Bureau Federation.

County staff serves as staff to the GBA, but the GBA is a separate public entity and the GBA’s Board is comprised of officials from each of its member agencies. The GBA Board convenes monthly while the Coordinating Committee meets twice a month on planning activities with facilitation provided by DWR and the Center for Collaborative Policy. The GBA has been highly successful in developing and approving regional water studies and plans for the County, including in 2004 the Eastern San Joaquin Groundwater Basin Groundwater Management Plan and the 2007 Integrated Regional Water Management Plan.

3. Adoption of Countywide Management Plan

In May 2002, the San Joaquin County Board of Supervisors formally adopted the San Joaquin County Water Management Plan (“County Water Management Plan”) which was developed over an 18 month period with the assistance of a steering committee of regional stakeholders from 29 local, State, and Federal organizations and was facilitated through the

MOU between the County and DWR's Integrated Storage Investigation Program. The cost to prepare the County Water Management Plan was \$650,000.

The County Water Management Plan is a fundamental steering document that sets forth water resource project alternatives designed to meet year 2030 water supply demands for the County. The overall goal of the plan was three-fold: (1) to identify viable water supply and conjunctive use options in order to prevent further overdraft of the Northeastern Groundwater Basin, (2) to retard or eliminate the degradation of groundwater supplies due to saline water intrusion from the Bay-Delta, and (3) to meet future water demand for the entire County.

This stakeholder-driven process identified several water supply and management options that, collectively, could provide additional water supply for municipal, industrial, and agricultural activities. The alternatives could include reallocated water projects, new water projects, and water management strategies to protect the existing and future quality, and quantity, of water in the County.

4. USGS Salinity Study of the Eastern San Joaquin Groundwater Basin

In 2004, the GBA entered into a joint agreement with the United States Geological Survey (“USGS”) and DWR to complete the Groundwater Recharge and Distribution of High-Chloride Groundwater from Wells Study (“Study”). The purpose of this \$2.7 million, five-year study is to develop the necessary information to quantify the source and distribution of high saline water that is migrating into the Eastern San Joaquin Groundwater Basin. The information gained from the Study will answer many questions with respect to future water levels, water quality, and storage potential under current and future management practices in the Basin. Historically, high-chloride groundwater along the San Joaquin River boundary of the Eastern San Joaquin Sub-basin (Basin) has been defined by interpolating the 300 mg/L isochlor based on

limited groundwater quality data. Samples have measured in excess of 2,000 mg/L chloride. Consequently, the aerial and vertical distribution of high-chloride groundwater is poorly defined and the source of the high-chloride groundwater is unknown.

The total cost of the Study is projected to be \$2,732,350. The proposed USGS contribution will be \$625,000 over five fiscal years as well as an additional \$725,000 from the DWR over the first four fiscal years. Member agencies within the Authority will contribute the remaining \$1,382,350 over five fiscal years. Both San Joaquin County and North San Joaquin, as member agencies of the GBA, are participating in these studies.

A portion of the USGS Study results was released in November 2006 regarding the sources of high-chloride water to wells in the Eastern San Joaquin groundwater sub-basin. The Study concludes that water levels are declining and chloride concentrations are increasing in water from wells in the Eastern San Joaquin groundwater sub-basin as a result of pumping in excess of recharge [SJC-5 See Sources of High Chloride water wells in the Eastern San Joaquin Groundwater Sub-basin dated November 2006] This Study is confirming and highlighting the need within the County to develop and utilize surface water supplies in order to cure the critically overdrafted Eastern San Joaquin groundwater basin. This includes the use within the County of the water available to North San Joaquin pursuant to Permit 10477.

5. Adoption of Eastern San Joaquin Groundwater Management Plan by GBA

The 2002 County Water Management Plan identified the need for an Eastern San Joaquin Groundwater Management Plan to meet the requirements of AB 3030 and SB 1938 (Wat. Code §§ 10750 et seq.) The GBA pursued and developed the Eastern San Joaquin Groundwater Management Plan. Preparation of the Groundwater Management Plan began in May of 2003 with a cost of \$650,000. In September of 2004, the GBA approved the Eastern San Joaquin

Groundwater Basin Groundwater Management Plan (“Groundwater Management Plan”). The adoption of this regional groundwater management plan is significant and included the cooperation and agreement of all eleven members of the GBA which adopted the Plan.

The purpose of the Groundwater Management Plan is to “review, enhance, assess and coordinate existing groundwater management policies and programs in eastern San Joaquin County to develop new policies and programs to ensure the long-term sustainability of groundwater resources in eastern San Joaquin County”

The Groundwater Management Plan identifies an Integrated Conjunctive Use Program as a key element in fulfilling the purpose of the Plan. Other components of the Groundwater Management Plan include a Groundwater Monitoring Program. Current activities or projects of the Program include semi-annual groundwater measurements of over 300 wells; development of the San Joaquin County Groundwater Data Center accessible to the general public for groundwater data; and the USGS Joint Salinity Study.

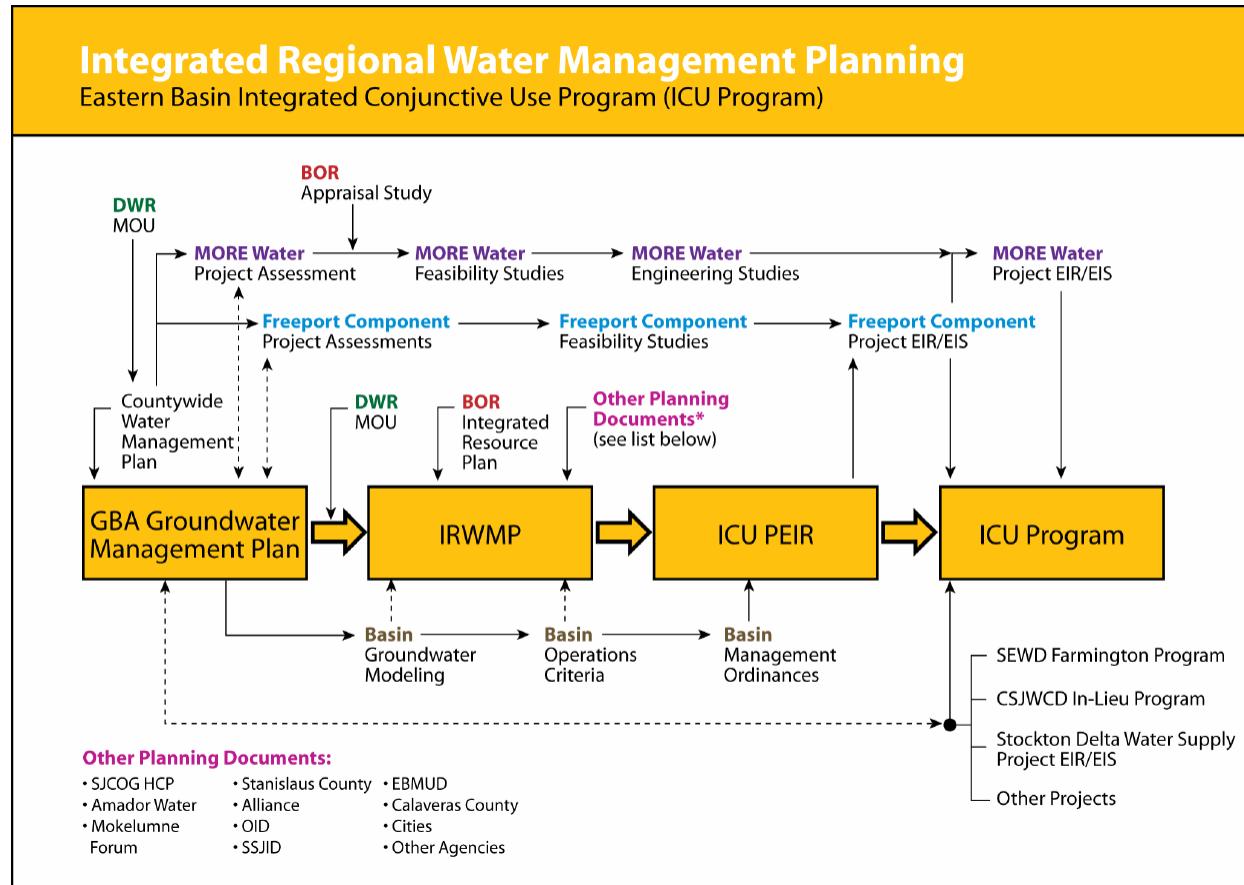
6. Integrated Regional Water Management Plan

Following the adoption of the Groundwater Management Plan, the County entities determined the need to prepare a regional management plan. Thus, in May of 2005, the GBA embarked on preparing an Integrated Regional Water Management Plan (“IRWMP”). This included seeking a Proposition 50 funding grant in the amount of \$500,000, which was awarded to the GBA in January 2006.

The GBA’s IRWMP development has centered on correcting the overdraft condition and preventing further saline intrusion through the incorporation of several water management strategies together with additional new water supply from projects like the City of Stockton’s

Delta Water Supply Project, SEWD's Farmington Program, and the MORE WATER Project. and EBMUD's Freeport Project assigned pipeline capacity.

The Draft IRWMP was presented to the GBA in June of 2007 and was approved on July 25, 2007. The purpose of the Eastern San Joaquin Integrated Regional Water Management Plan is to define and integrate key water management strategies to establish the protocols and course of action for implementation of the Eastern San Joaquin integrated Conjunctive Use Program (“ICU Program”). The IRWMP identifies regional objectives for the management of the eastern San Joaquin Groundwater Basin, evaluates alternatives and has established the implementation plan for the ICU Program. The ICU Program alternatives include multiple projects and management actions to fully meet the objectives outlined in the IRWMP. The IRWMP identified 4 Program Alternatives that will be carried forward into the Programmatic CEQA analysis. An American River Freeport Diversion is included in 2 of the 4 alternatives. [SJC-6, p. 7-68.] The below diagram describes this ongoing process.



7. ICU Program Programmatic EIR

On October 17, 2007, the Notice of Preparation (NOP) was published for the Eastern San Joaquin ICU Program PEIR. The NOP describes the ICU Program alternatives that were developed in the IRWMP and identified environmental issues that will be addressed in the PEIR. The public comment period on the NOP was open through November 15, 2007. The PEIR is currently being prepared.

VI. Recent County Efforts to obtain American River Water

Eastern San Joaquin County has long been promised water from the American River by both the State and Federal governments. The planned construction of the Auburn Dam and the Folsom South Canal to San Joaquin County has never come to fruition. The Bureau of

Reclamation's inaction and the current regulatory restrictions on water resources development have forced San Joaquin County to weigh other more expensive alternative water sources.

In 1990, San Joaquin County submitted an application to the State Board to appropriate wet-year water from the American River via the proposed extension of the Folsom South Canal (Application 29657). This canal extension was never completed. San Joaquin County has since amended its American River application to move the point of diversion from the American River to the Sacramento River to coincide with the point of diversion of the Freeport Regional Diversion Project ("Freeport Project") at a maximum diversion rate of 350 cfs. This also allows additional water flow on the American River through the City of Sacramento.

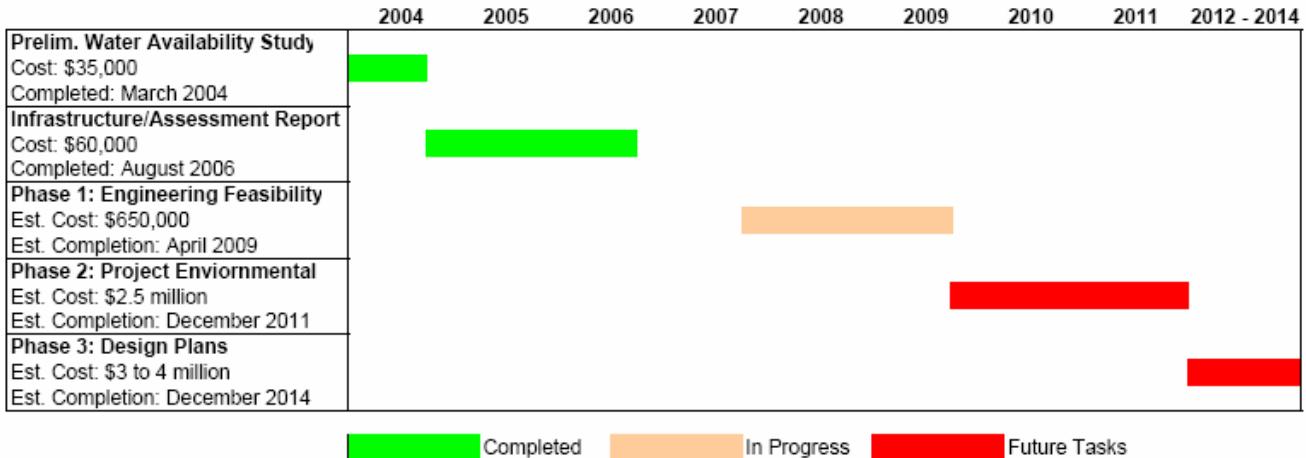
To support the amendment of the water right application, the GBA completed the American River Water Availability Study in 2003, which concluded the amount of water available to the County is limited by Freeport Project pipeline capacity. Assuming the Freeport Project is utilized by EBMUD in one-third of all years and the County is able to secure a wet-year water right on the American River, the maximum annual diversion amount would be approximately 65,000 af per year at an average annual yield of 44,000 af per year. The Water Availability Study suggests that in years when EBMUD is not utilizing the Freeport Project, the full amount will be available under a secured County water right.

In August of 2006 the GBA working with the Department of Water Resources and the County of San Joaquin prepared an analyses of the development and use of American River Water within the County entitled "Technical Memorandum: Potential Use of Unassigned Freeport Regional Water Project Pipeline Capacity" prepared by WRIME, Water Resources & Information Management Engineering, Inc. [SJC -7.]

A Request for Proposal (“RFP”) for the Freeport Element Project Phase I: Feasibility Study and was released in September 2007. A contract agreement with GEI Consultants, Inc. was approved by the Board of Supervisors on December 11, 2007. The time schedule for Phase I will be conducted over a 16-month period, commencing in December 2009 at a maximum cost of \$711,643.

Phase I will focus on the Feasibility Study, which will be prepared to allow immediate and seamless transition to the Environmental Documentation phase. The overall objective of Phase I is the development and evaluation of Project alternatives that will use available Freeport Regional Water Project pipeline capacity.

Phase II will focus on specific environmental topics included, but not limited to: surface water, groundwater, water quality, land use, agricultural resources, public services and utilities, biological resources, air quality, geology and soils, transportation and circulation, recreation and aesthetics, noise/vibration, public safety, flooding and drainage, growth inducement, and cumulative impacts. In addition, the County will work closely with the consultant to schedule required public meetings and prepare outreach and meeting materials, integrate County public, and agency comments on scoping and draft documents through EIR certification. (See American River – Freeport Element Project work schedule below which includes current estimates of Project phases and costs).



On March 14, 2008 the State Water Board noticed the County's Application 29657.

[SJC-8.] The County received and responded to twenty protests regarding this application.

The following is a summary of project development information regarding the County's Freeport Element Project.

a. What is the EBMUD Freeport Project?

The Sacramento County Water Agency (SCWA) and East Bay Municipal Utility District (EBMUD) are in the process of developing and constructing a new diversion from the Sacramento River just south of Sacramento city limits near Freeport. The project will include diversion, pumping and conveyance facilities to the Folsom South Canal, a treatment plant to serve SCWA, pumping and conveyance facilities from the end of the Canal to a connection point with EBMUD's Mokelumne Aqueduct in San Joaquin County, where water would be treated and conveyed to the East Bay.

b. How can San Joaquin County participate in the Freeport Project?

The new diversion at the Freeport site will have a capacity of 286 cfs. Of this capacity, 131 cfs would be used in most years to meet needs within Sacramento County. The other 155 cfs would be conveyed to a connection point with EBMUD's Mokelumne Aqueduct in San Joaquin County. EBMUD needs this capacity only in the driest years. The capacity could be made available to San Joaquin County or other users about two-thirds of the time in average and wetter years.

c. What water supplies could the County wheel through this pipeline?

San Joaquin County could utilize its water right application for American River water, purchase or transfer water from willing sellers in the Sacramento Valley, or use the water rights of a third party for groundwater banking. The County has amended its application to appropriate water from the South Fork American River to move the point of diversion to the Freeport site. The revised application would allow diversion of up to 147,000 af per year at a rate of up to 350 cfs during the period from December 1 through June 30. The State Board has declared the American River system fully appropriated for the period from July 1 through October 31.

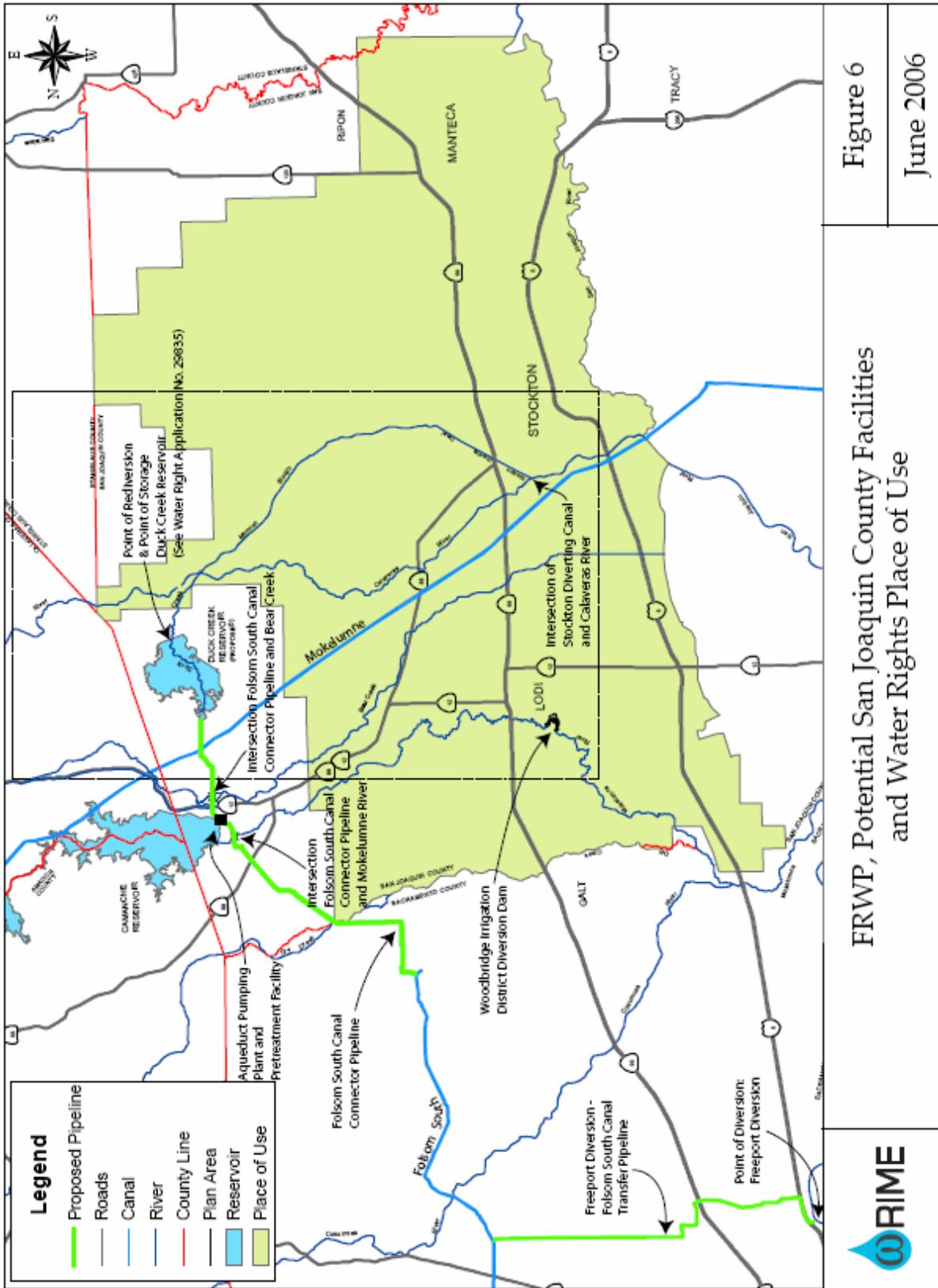
d. What infrastructure would be required?

Necessary facilities primarily consist of an outlet from the EBMUD facilities, conveyance to distribution systems, and groundwater recharge facilities. Regulating facilities (e.g. Duck Creek Reservoir) significantly increase the optimization of recharge operations (See Figure below).

Water discharged from the Freeport pipeline to natural channels such as Coyote Creek, the Mokelumne River, or Bear Creek would be re-diverted for irrigation or groundwater recharge.

Some of the water diverted under the County's American River water right application could be used for irrigation early in the growing season. Use of winter flows would require either groundwater recharge facilities or diversion to regulating storage. The proposed connection point to the Mokelumne Aqueduct is about one mile from the watershed of the proposed Duck Creek Reservoir¹.

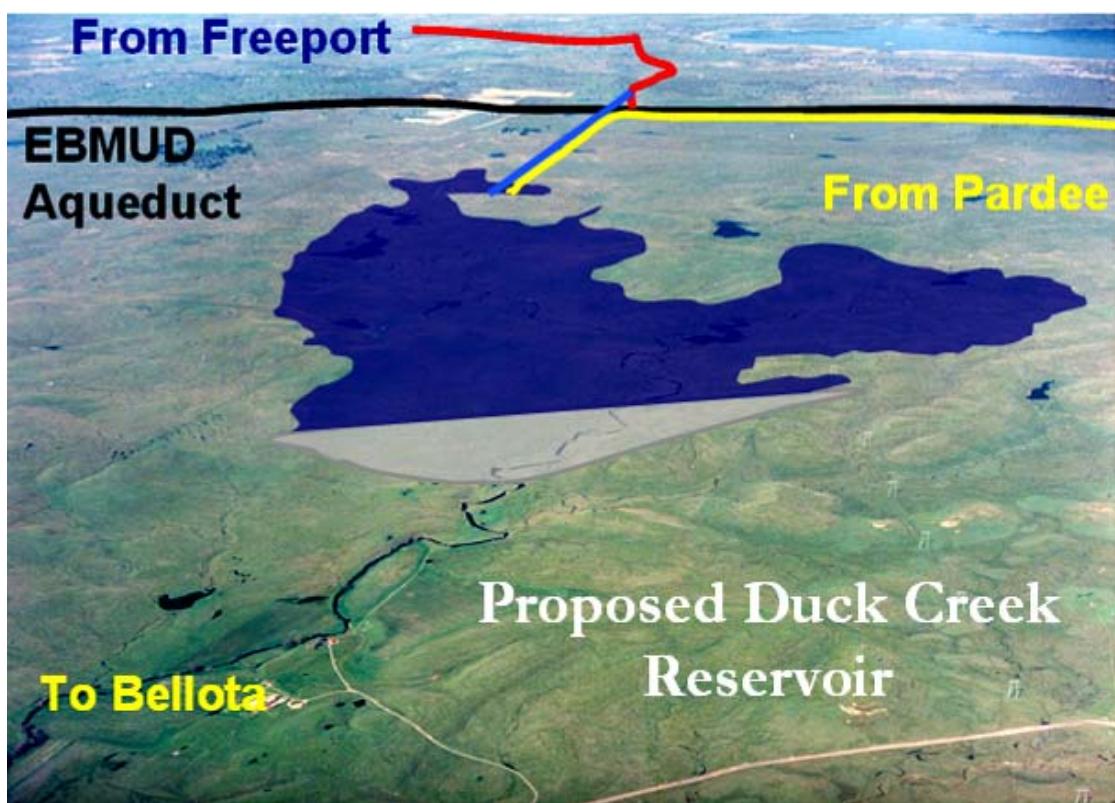
¹ The Mokelumne Aqueduct connection point would be at approximately elevation 250'. The divide separating the Mokelumne and Duck Creek watersheds is at approximately elevation 310'.



e. Where would these facilities likely be located?

Water released to Coyote Creek or Bear Creek could be most readily utilized by North San Joaquin Water Conservation District (NSJWCD). Water released to the Mokelumne River could be used by NSJWCD, Woodbridge Irrigation District (WID), or the City of Lodi. In addition, water conveyed to the Duck Creek drainage could be used by SEWD, City of Stockton or the County.

Site suitability for pond recharge generally increases to the west, though NSJWCD and SEWD have demonstrated pilot recharge projects several miles east of Highway 99 in the Mokelumne and Calaveras River alluvial fans. SEWD's Farmington



Groundwater Recharge Project is targeting the area between Highway 99 and Jack Tone Road for surface recharge. The figure above provides a view of the Freeport Element Project connection to the proposed MORE WATER Project Duck Creek Reservoir.

f. What is the cost estimate currently for this type of project?

It was estimated that in-lieu distribution facilities to provide water to growers currently using groundwater could be \$1,100/acre, and groundwater recharge basins percolating one foot per day could cost up to \$48,000 per acre². The addition of

² Unit costs from March 1996 Mokelumne Aquifer Recharge and Storage Project report, escalated to 2003\$ at 4% per year.

13,000 in-lieu acres would require \$14 million in capital improvements to utilize about 25% of the available Freeport supply³. About 76 acres of recharge ponds⁴ at a cost of approximately \$3.7 million would be required to recharge 25% of the available Freeport supply. About 310 acres of ponds at a cost of \$15 million would be required to recharge the entire available Freeport supply. Approximately 10 to 12 miles of trunk conveyances would be required at a cost of about \$2.5 million per mile⁵ (\$25-30 million). The cost of regulatory storage at the Duck Creek site is being investigated by the Mokelumne River Water and Power Authority.

These figures suggest that approximately \$40 million in distribution and recharge facilities would be required to make use of the Freeport supplies. This is comparable to the estimate for the Farmington Groundwater Recharge Program to recharge a similar amount of water. Recharge facilities will be required to offset groundwater overdraft with or without participation in the Freeport Project.

	Capacity	Estimated Costs, 2003\$			
		Capital	O&M	Water Cost	Unit Cost
	AF/yr		\$/AF	\$/AF	\$/AF
Agricultural Wells (1000 gpm)	538	\$233,000	\$28	\$0	\$60
Lodi Supplemental Supply	6,000	+	+	\$200	\$200+
Stockton Delta Diversion Project	28,000	\$121,000,000	+	+	\$350+
Farmington Project	35,000	\$33,500,000	+	\$58	\$130+
Freeport Project					
No capital cost participation	44,000	\$0	\$130	\$0	\$130+
Local recharge facilities only	44,000	\$40,000,000	\$130	\$0	\$200
Full capital cost participation	44,000	\$150,600,000	\$130	\$0	\$380

Capital repayment to EBMUD, based on expected San Joaquin County use of the Freeport facilities could be as high as \$180 per acre-foot⁶.

g. How much would County water supplies increase?

If EBMUD's unused capacity is used to divert at a maximum rate of 155 cfs, the average annual diversion to San Joaquin County under the revised application would be about 44,000 to 63,000 af/yr.⁷

³ In-lieu facilities could only be utilized during periods of water availability during the irrigation season (March-June) unless regulating storage (e.g. Duck Creek Reservoir) is provided. About 36,000 participating in-lieu acres at a cost of \$40M would be required to use 50% of the available Freeport supply.

⁴ Assumes a percolation rate of 1.0 feet/day

⁵ 155 cfs @ \$6.10/dia-in/ft

⁶ Facilities necessary for San Joaquin County delivery (e.g. without treatment) total about \$284M of \$665M total. Capital recovery at 6% and 30 years. Based on expected frequency of use.

⁷ Saracino-Kirby-Snow, May 2003, South Fork American River Water Availability Study
San Joaquin County Water Right Application 29657 Progress Report

h. What's the per-acre-foot cost of this supply?

EBMUD estimates the cost to operate the Freeport facility, exclusive of water purchase or treatment cost of approximately \$130 per af⁸ assuming an energy cost of \$0.15/kWh. Capital repayment to EBMUD for use of the Freeport facilities will be from \$0 to \$180 per af depending on the deal San Joaquin County can negotiate and what elements are included.

Capital repayment for recharge and conveyance facilities will be about \$70 per af. Total unit cost will thus likely be between \$200 and \$380 per af.

i. How does this compare with current supplies and other potential supplies?

Existing cost estimates vary in their level of detail, but costs for Freeport Project participation are generally in the range of other projects being considered within San Joaquin County.

- i. Groundwater pumping costs. Pumping costs vary depending on depth to water, aquifer parameters, energy rates, and other factors. A typical 1000 gpm (gallons per minute) well in San Joaquin County with a 80-foot depth to groundwater will have a total pumping lift of about 120 feet⁹ and an energy cost of about \$28 per af¹⁰. Such wells cost about \$230,000 to construct¹¹. Typical unit life-cycle costs are about \$60 per acre-foot.
- ii. Lodi supplemental supplies. The City of Lodi approved a 2003 agreement to purchase up to 6000 acre-feet per year of water conserved by the Woodbridge Irrigation District at cost equivalent to \$200 per acre-foot. Additional facilities will be needed to recharge or treat this supply.
- iii. Stockton Delta Diversion Project. The first 30 mgd (million gallons per day) phase of Stockton's Delta Water Supply Project has an estimated capital cost of \$121 million. Capital repayment plus operating costs are estimated to translate into a treated water cost of approximately \$380 to \$450 per acre-foot.¹²
- iv. Farmington Project. This \$33.5 million SEWD/Army Corps project is projected to spread an average of 35,000 acre-feet per year on 1200 acres¹³. SEWD purchases Stanislaus River water at up to \$58 per acre-

⁸ Approximately 86 percent of this cost is for energy. Unit cost would be \$110/AF at \$0.12/kWh. All costs in 2003 dollars. Excludes cost of treatment and pumping into Mokelumne Aqueduct.

⁹ Using transmissivity of 70,000 gpd/ft and storativity of 0.0004

¹⁰ Including electrical capacity charges of about \$125/mo per PG&E Schedule AG-1 Rate B

¹¹ Cost from 1996 MARS report, escalated to 2003\$ at 4%/yr

¹² Earth Sciences Associates, 2003, Feasibility Report City of Stockton Delta Water Supply Project, p.25.

Current consumer treated water costs are about \$300/AF, plus meter charges of \$140/yr

¹³ Farmington Groundwater Recharge Program Fall 2003 newsletter

foot. The unit cost of this supply is thus about \$130 per acre-foot, plus operation costs.

j. Are there potential offsetting benefits that would lower San Joaquin County costs?

- i. Pardee redundancy/emergency supply. EBMUD has identified the need to take the 75-year-old Pardee/Mokelumne Aqueduct system off-line for maintenance or for emergency outage. The planned Freeport Project will supply a maximum of 100 mgd of EBMUD's 229 mgd demand.
- ii. Staffing needs. The intake will be utilized in all years, but the two pumping plants from the end of the Folsom South Canal will only be used by EBMUD in one year out of three, creating staffing peaks. Operating the system more frequently may allow leveling staffing needs resulting in lower overall operating costs, a portion of which would accrue to the County.
- iii. Maintaining freshening supplies in pipeline. EBMUD may not use the Freeport facilities for several consecutive years, which will either require emptying the Folsom South Connection pipeline or maintaining a low flow to prevent stagnation and eutrophication. This offset cost might be credited against San Joaquin County costs.
- iv. Groundwater banking revenues. Banking the water supplies of San Joaquin County or another entity and selling it in dry years could develop significant revenue. Potential banking partners include EBMUD, the Environmental Water account, entities south of the Delta, and others.
- v. Increased overall efficiency. EBMUD plans to operate the Freeport system in dry years to maintain storage in its reservoirs as a hedge against continued drought. This operation will cause much of the stored water to be lost if the dry years do not continue and the reservoirs spill. If EBMUD had a banked water supply to rely on in dry years, it could operate its Freeport facilities much less frequently, resulting in substantial cost savings and greater availability of the facilities for others.
- vi. Regional flexibility for transfers and exchanges. Adding conveyance capacity can facilitate water transfers and exchanges by regulating water supplies in surface or groundwater storage, for which fees can be assessed.

The proponents of the Freeport project are the Sacramento County Water Agency (SCWA) and EBMUD. Securing access to the pipeline at an affordable price is one of the negotiating points targeted by County staff. Formal negotiations with the FRWA have started and the Board of Supervisors has authorized and appointed a negotiating team should talks begin. The total preliminary cost of the Freeport Project is estimated at \$690 million, \$439 million of which will be funded by

EBMUD (Freeport Regional Water Authority Website, 2004). Additional operations and maintenance costs are estimated to be approximately \$130 per acre-foot. The cost to San Joaquin County for participation is subject to negotiation with EBMUD and FRWA.

VII American River Authority

The American River Authority (ARA) is a joint powers agency created in 1982 by Placer County, El Dorado County, Placer Water Agency and El Dorado County Water Agency. The ARA was formed to support the common interest of seeing a dam, reservoir and hydroelectric power plant constructed at the Auburn Dam site. In November of 1995 the County of San Joaquin joined the ARA pursuant to the Amendment No. 3 of the Joint Powers Agreement of the American River Authority.

On June 16, 2008, the ARA Board approved the “Auburn-Folsom South Unit Summary of Report” prepared by California Water Consulting, Inc., and Peterson Brustad, Inc. [SJC- 9.] The conclusion and recommendation of this Report is to “maintain the Auburn Dam option” by preserving the Dam site to maintain the option of developing the project and to preserve the water rights associated with the Auburn Dam as their loss would place an unnecessary obstacle on the potential future development of the project. In addition a new comprehensive Feasibility Study for the Auburn Dam is recommended. [SJC-9 p. 30, 31.]

VII. Conclusion

In an effort to address the critically overdrafted groundwater basin, the County has undertaken significant efforts to work collaboratively on a regional basis on the many plans and projects identified above --- this includes use of American River water. The County and the county water interests continue to diligently pursue providing surface water supply to our area. The American River is a critical component of this effort.

The County, the Bureau and the State Board have made over fifty years of decisions directing the County to the Bureau and the American River to meet its water supply needs. The County respectfully requests that the State Water Board not revoke the Bureau's American River Auburn permit for direct diversion and grant a reasonable period of time of approximately three years for the County to meet with the Bureau and other interested parties in order to prepare a project to utilize the water pursuant to the Bureau's permit for the intended beneficiaries.

The actions by the Bureau in developing the water supply pursuant to these permits have not been within the control of the County of San Joaquin and the County is demonstrating with the development of its own American River water supply project that it can diligently move forward and develop a viable water supply project to serve the County from the American River. If additional time is provided the County will work with the Bureau to present a viable project to serve the County based upon the Bureau's priority water right permit, consistent with the many decisions by the State Water Board directing the County to the American River and providing priority water to serve the County.

The County respectfully requests an additional few years for the County to advance a viable option given the current 2008 conditions of water supply in California to utilize this Auburn Dam diversion water right permit priority and water supply to ultimately serve San Joaquin County residents. This has long been promised by the Bureau and the State Board, and the County would like to develop its own project to make delivery of water to the County from the American River a reality.

