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File No. 030137-0012

April 11, 2008

VIA FEDEX

CALIFORNIA ENERGY COMMISSION
Attn: Docket No. 07-AFC-3
1516 Ninth Street, MS-4
Sacramento, California 95814-5512

Re: CPV Sentinel Energy Project: Docket No. 07-AFC-3

Dear Sir/Madam:

Pursuant to California Code of Regulations, title 20, sections 1209, 1209.5, and 1210, enclosed herewith for filing please find Applicant's Responses to Data Requests 66 - 97.

Please note that the enclosed submittal was also filed today via electronic mail to your attention.

Very truly yours,

Paul E. Kihm
Senior Paralegal

Enclosure

cc: Michael J. Carroll, Esq. (w/ encl.)

Responses to Data Requests #66 – 97

Application for Certification (07-AFC-3)

for

CPV Sentinel Energy Project

Riverside County, California

April 11, 2008

Prepared for:

CPV Sentinel, LLC

Prepared by:

URS

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RESPONSES TO DATA REQUESTS SET 2

TABLES

FIGURES

APPENDIX

LIST OF ACRONYMS AND ABBREVIATIONS USED IN RESPONSES

AF	acre-feet
AFC	Application for Certification
AFY	acre-feet per year
ANC	annual net freshwater conserved
bgs	below ground surface
CEC	California Energy Commission
CNC	cumulative net project freshwater conserved
CNDDB	California Natural Diversity Database
CPVS	CPV Sentinel Energy Project
CRA	Colorado River Aqueduct
CVWD	Coachella Valley Water District
DWA	Desert Water Agency
IID	Imperial Irrigation District
μg/L	micrograms per liter
mg/L	milligrams per liter
MOU	Memorandum of Understanding
MSWD	Mission Springs Water District
MWD	Metropolitan Water District
PSNGC	Palm Springs National Golf Course
PVID	Palo Verde Irrigation District
SWP	State Water Project
TDS	total dissolved solids
UWMP	Urban Water Management Plan
WWTP	Wastewater Treatment Plant

Technical Area: Biological Resources
Author: Michelle Lee Mattson

BACKGROUND

The application for the CPV Sentinel Energy Project, Biological Resources Section 7.2 states that the project would not impact special-status plant species, special-status wildlife species, or water bodies. The application states that no indications of special-status species were observed during field surveys. However, surveys by the Applicant's consultant were reconnaissance level on February 26, 2007, April 3, 2007, and May 7 through 10, 2007, during an extended drought period. Therefore, staff considers the results of these surveys to be highly inconclusive for the purposes of assessing potential project impacts. There was adequate rainfall in winter 2007/2008, so to complete its analysis staff needs spring 2008 protocol survey information for sensitive plants, Coachella Valley fringe-toed lizards, flat-tailed horned lizard, desert tortoise, and burrowing owls.

DATA REQUEST

66. Please provide spring 2008 sensitive plant survey information for the following federally listed species, as well as other special-status plants within the project vicinity as identified in the application. Surveys should be conducted by a qualified and permitted biologist using California Native Plant Society Botanical Survey Guidelines.

- Astragalus lentiginosus ***var.*** coachellae, ***"Coachella Valley milk-vetch" occurs in Sonoran desert scrub in sandy soils and blooms between February and May.***
- Astragalus tricarinatus, ***"triple-ribbed milk-vetch" occurs in Joshua tree woodland and Sonoran desert scrub and blooms between Feb and May.***
- Erigeron parishii, ***"Parish's Daisy" occurs in Mojavean desert scrub, pinyon and juniper woodland and blooms between May and June (note: response to this item will be provided after the April 14th due date for response to Data Request #2, but should not delay Publication of the Preliminary Staff Assessment).***

RESPONSE

Sensitive plant surveys using California Native Plant Society Botanical Survey Guidelines were conducted on March 24, 2008, by Dave Silverman of Xeric Specialties Consulting (résumé provided in Appendix A). Particular attention was paid to the Coachella Valley and trible-ribbed milkdvetch and Parish's Daisy. The area surveyed included the proposed 37-acre power plant project site, laydown area, and linears (i.e., proposed transmission line, water line/access road, and gas line routes). Conditions for botanical survey and the detection of rare plant species were generally good for the 2008 spring season; however, no rare or sensitive plants were detected.

Please note that the surveys conducted by Dave Silverman of Xeric Specialties Consulting on May 7 through 10, 2007 were thorough, detailed, and conducted according to CNPS Botanical Survey Guidelines. They were not reconnaissance level surveys (see Appendix J-1 in the Application for Certification [AFC]).

DATA REQUEST

67. Please provide the results of 2008 protocol surveys for the Coachella Valley fringe-toed lizards, flat-tailed horned lizard, desert tortoise, and burrowing owl. Surveys should be conducted by qualified and permitted biologists using full U.S. Fish and Wildlife Service recovery permit protocols. Please provide the resumes for the field biologists completing the surveys.

RESPONSE

Protocol surveys (and sensitive animal surveys for those species without established protocols) were conducted on March 25 and 26, 2008, by Dave Silverman of Xeric Specialties Consulting (résumé provided in Appendix A) for the Coachella Valley fringe-toed lizard, flat-tailed horned lizard, desert tortoise, and burrowing owl. The area surveyed included the proposed 37-acre power plant project site, laydown area, and linears (i.e., proposed transmission line, water line/ access road, and gas line routes).

There was a good level of detectability for burrowing animal activity. Weather conditions for detectability of the target species were good for burrowing owl and desert tortoise. Conditions for detectability were fair for the Coachella Valley Fringe-toed lizard and flat-tailed horned lizard because of a storm system that made daily temperatures unseasonably cool. However, temperatures in the region leading up to the survey were very favorable for early springtime activity of all target species, and a subset of the existing populations for these species was expected to be active during sub-optimal weather conditions because of the peaking of seasonal biological activity. No sensitive species were detected.

Please note that surveys conducted by Dave Silverman of Xeric Specialties Consulting on May 7 through 10, 2007, were thorough, detailed, and conducted to accepted protocols. They were not reconnaissance level surveys (see Appendix J-1 in the AFC).

BACKGROUND

A site review of potential jurisdictional waters and wetlands was completed concurrently with the 2007 reconnaissance surveys for sensitive plants and wildlife. As noted in the project application, numerous difficulties can be encountered when performing delineations in dryland fluvial systems of the arid Southwest, particularly during drought conditions. However, staff observed several swales within the project area in October 2007. These swales did not appear to convey surface flows, but due to drought conditions evidence may not have been present. Therefore, staff needs the previous determination to be verified in March or April 2008 to take advantage of the physical and biological characteristics that may have been reestablished by winter 2007/2008 rainfall.

DATA REQUEST

68. Please conduct a jurisdictional determination of waters of the United States and waters of the State within the project site as regulated by the U.S. Army Corps of Engineers (ACOE) and Regional Water Quality Control Board (RWQCB) under Section 404 of the Clean Water Act and California Department of Fish and Game under Section 1602 of the State Fish and Game Code, respectively. Please utilize both the 1987 Corps of Engineers Wetland Delineation Manual and the 2006 Guidelines for Determinations for Waters of the United States in the Arid Southwest. Please conduct a survey determination in spring 2008 to take advantage of the winter 2007/2008 rainfall. Please provide the survey results and identify the staff completing the determination and their qualifications.

RESPONSE

The 2007 determination was re-examined on March 28, 2008, by Wayne Vogler and Johanna Kisner of URS (résumés provided in Appendix A). No waters of the United States or waters of the State were found within the 37-acre power plant project site or laydown area, or along any of the linear right of ways (i.e., proposed transmission line, water line/access road, and gas line routes). Both the 1987 U.S. Army Corps of Engineers Wetland Delineation Manual and the 2006 Guidelines for Determinations for Waters of the United States in the Arid Southwest were used to determine if there were waters in the project area.

Assessment of the site in 2007 was difficult because of the lack of rain. However, approximately 3.4 inches of rain fell at the project site between October 2007 and the end of March 2008, which was sufficient to make a determination. Additionally, there was substantially more vegetation in 2008 than 2007, which helped support the determination.

Each of the drainage or swale features on site or along the linears was examined to determine if it had a defined bed and bank and was connected to any other jurisdictional waters. No onsite drainage features connected to jurisdictional waters. Additionally, none of the drainage features on site had a bed and bank or showed any sign of scour or flow, and all were heavily vegetated with nonnative grasses and weedy species. Based on this information, it was determined that there are no waters of the United States or the State within the project site.

BACKGROUND

A search of the California Natural Diversity Database (CNDDB) revealed the presence of a sensitive natural community in the vicinity of the proposed project, Mesquite Bosque along the Banning Fault. Mapped occurrences of Mesquite Bosque are generally one mile southeast of the project area. Although this sensitive community does not occur within the project area, staff needs to determine if the project would directly and/or indirectly impact the community through the use of groundwater for power plant cooling.

DATA REQUEST

69. a. Please provide a detailed assessment of the potential short and long-term effects of groundwater use by the project on the Mesquite Bosque plant community.

b. Please provide bibliographic information on any existing research on the Mesquite Bosque in the Coachella Valley region, particularly the plant's responses to drought cycles and fluctuations in groundwater levels.

RESPONSE

Mesquite bosques are open to dense streamside forests with generally open understories, usually maintained by flood or fire. The dominant trees are *Prosopis pubescens* (screw bean mesquite) and *Prosopis velutina* (velvet mesquite). Other commonly encountered plant species include annual and perennial grasses, graythorn, blue palo verde, virgin's bower, Mexican elder, desert hackberry, and indian root. Mesquite is a thorny, drought deciduous tree or shrub. In desert grasslands, individuals tend to be shrub-like and small, usually up to 4 feet tall. Along watercourses or floodplains, mesquite is able to attain heights up to 50 feet. The root system of mesquite is one of the deepest known, in rare cases exceeding 100 feet in depth, although the majority of the root system is located in the upper 3 feet of soil. Mesquite bosques are generally restricted to soils 10 to 45 feet above the water table. Mesquite flowers in spring, producing large inflorescences of bee pollinated flowers. *Prosopis* are generally found below 5,000 feet in elevation. Velvet mesquite ranges from central and southern Arizona, southwestern New Mexico and northern Mexico. Screw bean mesquite bosques have never been extensive in California and are restricted to the lower Colorado River and Arizona. These bosques are threatened by agricultural and residential development, groundwater pumping, flood control and tamarisk (*Tamarix* sp.) invasion. Mesquite bosques are generally highly productive woodlands which provide shade, food and habitat to a variety of organisms including mammals, birds, reptiles and insects.

A search of the California Natural Diversity Database (CNDDB) in 2007 revealed a mesquite bosque that was mapped in 1980 approximately 5 miles north of the project site (see Figure 7.2-3 in the AFC). A new CNDDB map was generated using the March 2008 dataset and no new occurrences of mesquite bosques or hummocks were found.

After further discussion with the California Energy Commission (CEC) biologist, the Recirculated Final Coachella Valley Multiple Species Habitat Conservation Plan and Figure 4-13c (Willow Hole Conservation Area) of the Natural Community Conservation Plan were also examined. No mesquite bosques are mapped, but mesquite hummocks are shown approximately 2 miles east/ northeast of the southeastern terminal end of the gas line. The nearest mesquite bosque is approximately 3 miles to the northeast (CVAG, 2007).

There are no expected short- or long-term impacts to the mesquite bosques associated with the proposed project. Groundwater pumping for the project will be drawing water from 300 to 400 feet below ground surface (bgs), whereas mesquite root systems are known to reach 50 feet bgs and rarely as much as 100 feet bgs. Groundwater modeling indicates project-specific drawdowns would be minimal (less than 1-foot in Scenario 1A; 1 to 2 feet in Scenarios 1B, 2A, and 2B; less than 0.4 foot in Scenario 3A; and less than 0.3 foot in Scenario 3B) (see Responses to Data Requests 62 through 65, January 22, 2008, Appendix B – Table 1: CVWD Wells). Additionally, all known mesquite bosques are located in areas that do not receive water from the project area, either through surface or groundwater flow, or are more than 5 miles away from the project area. There are mesquite hummocks found to the southeast of the project site, but they are approximately 3 miles from the groundwater pumping region. These mesquite hummocks will not be affected by changes to the surface flows, because the hummocks are located in a different watershed.

References consulted for mesquite bosque information include Saguaro Juniper Corporation, 2008; Arizonensis, 2008; Pima County, 2008; CVAG, 2008; and University of California Santa Barbara, 2008.

Technical Area: Cultural Resources
Author: Michael Lerch and Dorothy Torres

Any information that identifies the location of archaeological sites needs to be submitted under confidential cover.

BACKGROUND

The AFC Supplement describes a proposed recycled water line to serve the Palm Springs National Golf Course, thereby reducing groundwater pumping (page 2). The proposed 900-foot, 12-inch-diameter recycled water line is shown in Figure 2 at a small scale. To assess potential impacts to cultural resources from the water line, the Applicant's consultants conducted a records search to identify previously conducted surveys and studies, as well as previously recorded archaeological sites within a 1/2-mile search radius (page 8). The records search results are contained in a confidential filing. To complete its review of the records search data, staff needs additional information on the location of the pipeline, the records search area, and the records search results.

DATA REQUEST

70. Please provide a USGS 7.5-minute quadrangle map showing the proposed pipeline alignment, the records search area, and the locations of previous studies and previously recorded sites.

RESPONSE

A U.S. Geological Survey 7.5-minute quadrangle map showing the proposed recycled water pipeline alignment, the records search area, and the locations of previous studies and previously recorded sites is provided separately under confidential cover.

BACKGROUND

The Applicant's consultants reviewed aerial photography of unknown age for the proposed construction area of the recycled water line and concluded that there was no exposed ground and therefore a field survey was not conducted. Staff needs to review these photographs to confirm the Applicant's conclusions, and to evaluate the amount of existing development in the vicinity of the proposed pipeline. Furthermore, examination of historical aerial photographs can identify areas of cultural resource sensitivity such as sand dunes, drainages, and historical buildings and structures.

DATA REQUEST

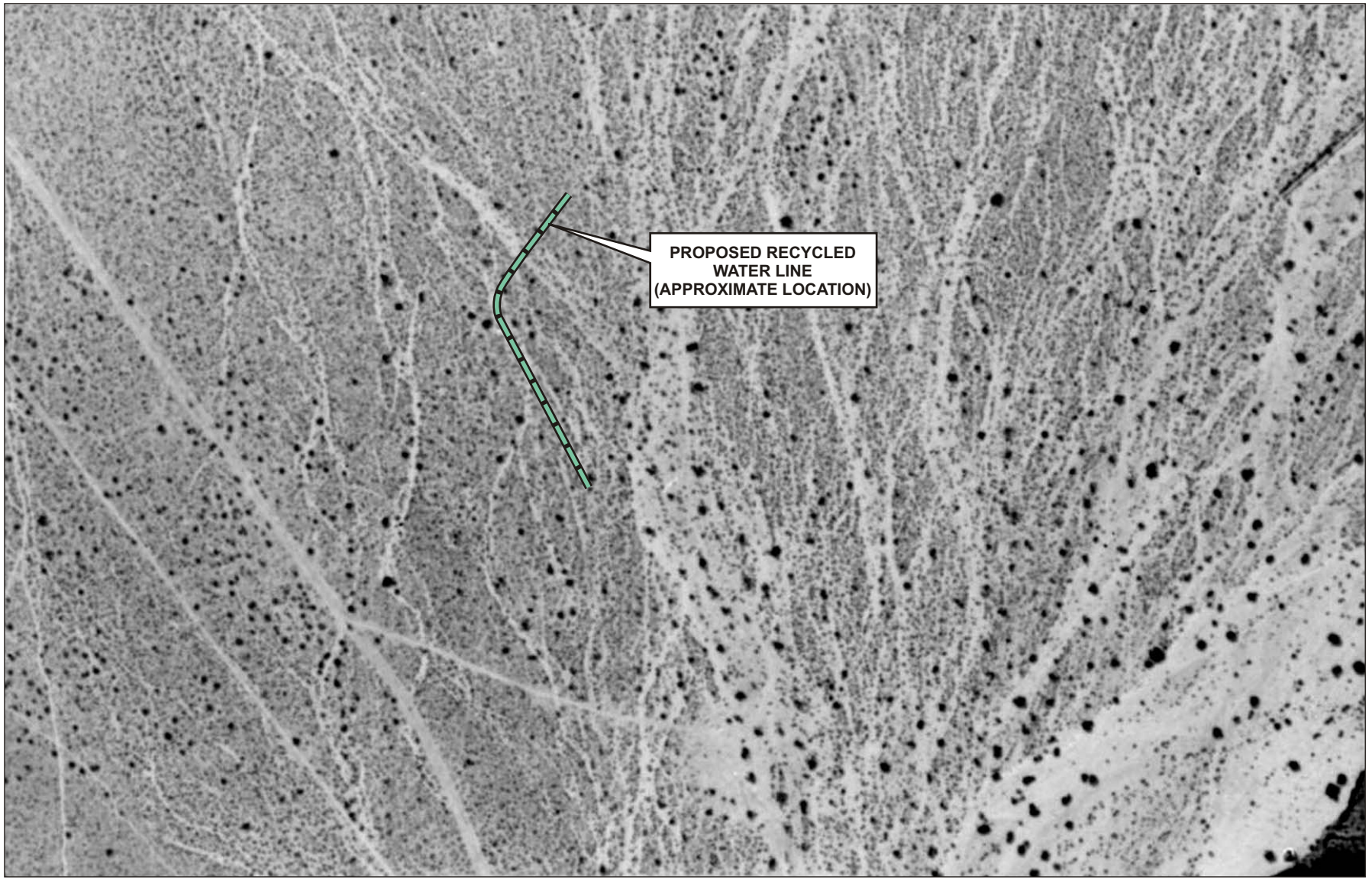
71. Please provide copies of the aerial photographs that were examined to make the decision that no survey was needed, as well as any earlier photographs of the area that may be available.

RESPONSE

Figure 71-1 shows an aerial photograph taken in 1953 and the approximate location of the proposed recycled water pipeline. This aerial photograph is the earliest photograph obtained for the area, and predates development of the Palm Springs National Golf Course in 1960-61.

Figure 71-2 shows an aerial photograph taken in 1978 and the approximate location of the proposed recycled water pipeline. This aerial photograph is the earliest photograph obtained for the area following development of the Palm Springs National Golf Course.

Figure 71-3 shows an aerial photograph obtained from Google Earth in 2008 and the approximate location of the proposed recycled water pipeline. This aerial photograph was used to determine that no survey was needed.



Source:
EDR, March 2008

0 400
Approximate Scale in Feet

N

AERIAL PHOTO OF SITE – 1953

CPV Sentinel Energy Project
April 2008 CPV Sentinel, LLC
28067168 Riverside County, California

URS

FIGURE 71-1

4/10/08 vsa..\CPV Sentinel 2008\Data Request 71\71-1_aerial 1953.cdr

Source:
EDR, March 2008

0 400
Approximate Scale in Feet

N

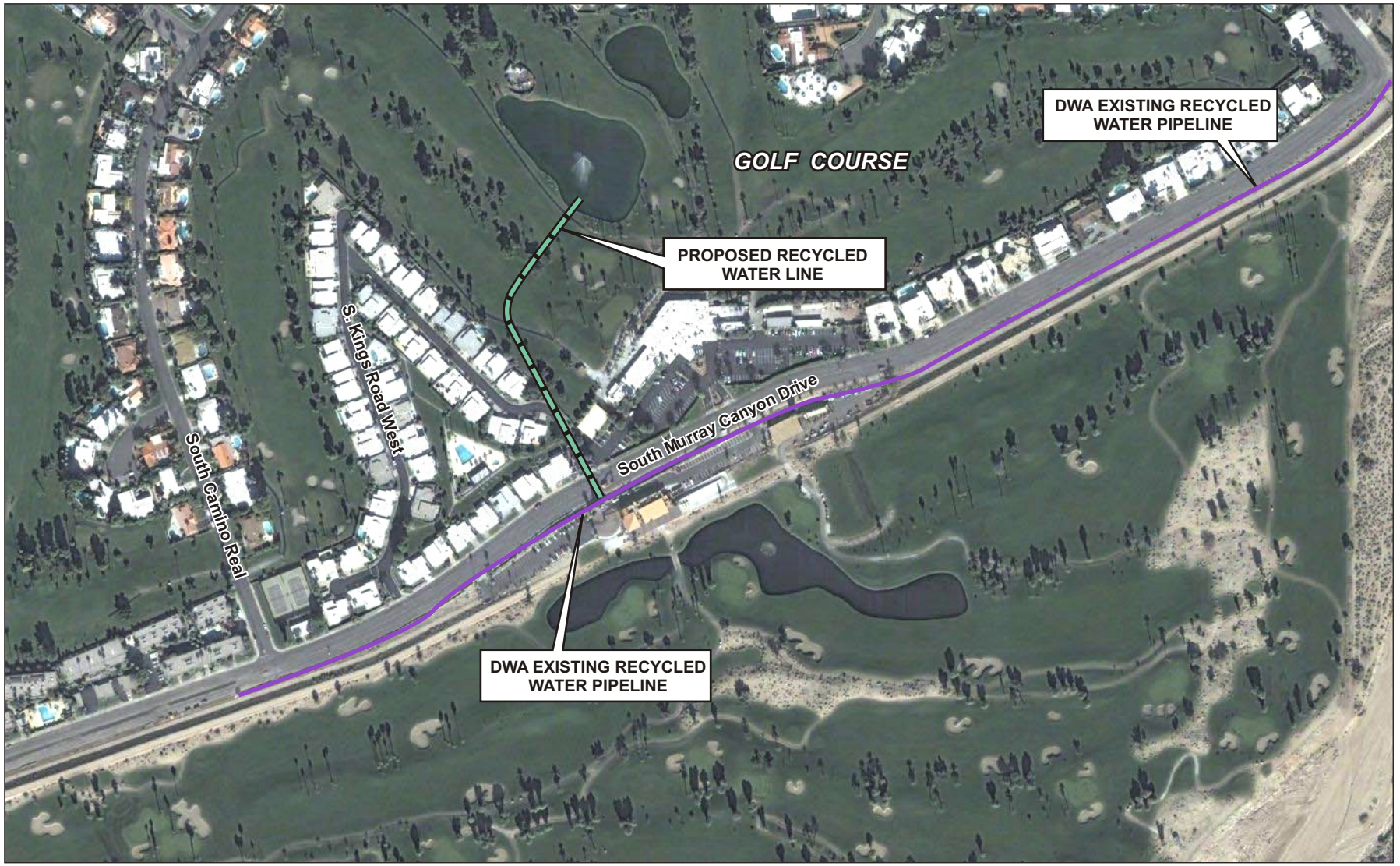
AERIAL PHOTO OF SITE – 1978

CPV Sentinel Energy Project
April 2008 CPV Sentinel, LLC
28067168 Riverside County, California

URS

FIGURE 71-2

4/10/08 vsa..\CPV Sentinel 2008\Data Request 71\71-2_aerial 1978.cdr



Source:
Google Earth 2008

0 400
Approximate Scale in Feet

N

AERIAL PHOTO OF SITE – 2008

CPV Sentinel Energy Project
April 2008 CPV Sentinel, LLC
28067168 Riverside County, California

URS

FIGURE 71-3

4/10/08 vsa..\CPV Sentinel 2008\Data Request 71\71-3_aerial 2008.cdr

Technical Area: Socioeconomics
Author: Hedy Born

BACKGROUND

As a result of the Revised Water Supply Plan, the Applicant has eliminated its prior proposal to upgrade the Horton Wastewater Treatment Plant (WWTP) to tertiary treatment and to purchase reclaimed water from Horton WWTP. Instead, the Applicant has entered into two Memorandum of Understanding (MOU) agreements with Desert Water Agency (DWA) to fund the installation of a recycled water line to serve Palm Springs National Golf Course and irrigation controllers for a portion of existing DWA customers. In addition, Section 3.2 of the Revised Water Supply Plan (page 4) also states that the Applicant will provide additional funding to DWA to potentially accelerate planned capital development of its recycled water system.

Although the Conservation Agreement's MOU is open-ended, the proposed Revised Water Supply Plan would result in changes to direct, indirect and induced economic impacts and fiscal resources of the project.

DATA REQUEST

72. Please review the estimates presented in Sections 7.8.2.2 through 7.8.2.4 (see AFC pages 7.8-8 to 7.8-10), as well as from Data Adequacy Response ID #10, and provide revised economic and fiscal impacts as needed for the following:

a. Total Project Capital Costs;

b. Estimate of Regionally Purchased Equipment and Materials (for both construction and operation);

c. Estimated Annual Property Taxes;

d. Direct Income during both construction and operation;

e. Secondary Income during both construction and operation;

f. Payroll during both construction and operation (for permanent and short-term employees);

g. Estimated Sales Tax;

h. Estimated School Impact Fees.

RESPONSE

a) AFC Section 7.8.2.2 identified $377.5 million for power plant construction, with $40.5 million in construction payroll and $337 million in construction materials and equipment. The revised water supply plan would result in an additional $2.5 million in capital costs. Thus, the revised total project capital costs are $380 million.

b) The value of locally purchased construction materials associated with the revised water supply plan is expected to be $66,000. Thus, when added to the $9 million for locally purchased power plant construction materials identified in AFC Section 7.8.2.2, the total construction materials purchased regionally would be $9.066 million. No operational

materials are anticipated to be purchased locally for power plant operations or for operation of the revised water plan.

c) The revised water supply plan will not require the purchase of additional lands. Therefore, estimated annual property taxes would remain at $5.1 million, as identified in AFC Section 7.8.2.4.

d) Ten additional workers would be required to install the irrigation controllers associated with the revised water supply plan. These personnel would work a period of 6 months, beginning in approximately July 2009. In addition, five workers would be required to install the recycled water pipeline at the Palm Springs National Golf Course. These personnel would work for a period of 1 month, beginning in approximately July 2009. The estimated direct income associated with these additional 15 construction workers is $1.3 million. Therefore, when added to the direct income during construction of $40.5 million identified in AFC Section 7.8.2.4, the estimated total direct income during construction would be $41.8 million.

Operation of the revised water supply plan would not require additional workers. Therefore, the $1.322 million estimate of total direct income for the first year of operation (AFC Section 7.8.2.2) would not change with implementation of the revised water supply plan.

e) The 15 construction personnel associated with the revised water supply plan would produce an estimated secondary employment effect of approximately two jobs, which would result in a secondary labor income of approximately $77,545 during construction. Therefore, when added to the estimated secondary labor income of $15,004,993 for power plant construction identified in AFC Section 7.8.2.3, the estimated total secondary construction labor income would be $15,082,538.

No additional operational personnel would be required for the revised water supply plan. Therefore, the $888,056 of estimated operational secondary labor income (AFC Section 7.8.2.3) would not be affected with the revised water supply plan.

f) Ten additional workers would be required to install the irrigation controllers associated with the revised water supply plan. These personnel would work for a period of 6 months, beginning in approximately July 2009. In addition, five workers would be required to install the recycled water pipeline to the Palm Springs National Golf Course. These personnel would work for a period of 1 month, beginning in approximately July 2009. The estimated payroll associated with these additional 15 construction workers is $1.3 million. Therefore, when added to the estimated payroll of $40.5 million identified in the AFC Section 7.8.2.2, the total estimated construction payroll is $41.8 million.

No additional workers will be required for operation of the revised water supply plan. Therefore, the $1.322 million estimate of total payroll for the first year of operation would not change with the revised water supply plan (AFC Section 7.8.2.2).

g) The revised water supply plan includes the purchase of construction materials valued at $1.2 million. This would generate approximately $87,000 in State of California sales tax revenue. The State would allocate 1 percent of the sales and use tax ($12,000) to Riverside County, and 0.5 percent ($6,000) to the Riverside County Transportation Commission. AFC Section 7.8.2.4 indicates that power plant construction would generate approximately $23.2 million in State of California sales tax revenue. The State

would allocate 1 percent of the sales and use tax ($2,320,000) to Riverside County, and 0.5 percent ($1,160,000) to the Riverside County Transportation Commission.

Therefore, the entire project would generate approximately $23,287,000 in sales tax revenue to the State of California. The State would allocate 1 percent of the sales and use tax ($2,332,000) to Riverside County, and 0.5 percent ($1,166,000) to the Riverside County Transportation Commission.

h) The revised water supply plan will not require the purchase of additional lands or increase the habitable square footage of structures used to determine school mitigation fees. Therefore, the estimate of school mitigation fees as referenced in AFC Section 7.8.2.7 would not be affected by the revised water supply plan and will remain at $2,381.40.

DATA REQUEST

73. Please indicate the year for all economic dollar estimates (e.g., construction costs, construction and operation payroll, sales taxes, property taxes, school impacts fees, etc.).

RESPONSE

All economic dollar estimates are given in 2007 dollars.

BACKGROUND

As stated in Section 5.8.1 of the Revised Water Supply Plan (page 11), construction activities for installation of the recycled water line are expected to require five workers with standard pipeline installation experience and take approximately one month to complete. There is no mention of the number of workers required for installation of irrigation controllers for existing DWA customers. In order to clarify the proposed total construction workforce and staffing schedule, please provide the following.

DATA REQUEST

74. Please address whether the five temporary workers required for pipeline installation are already considered as part of the total construction workforce. If not, please provide updated direct employment and staffing schedule tables, as needed, for Tables 7.8-9 and 7.8-10 from the AFC (pages 7.8-29 and 7.8-30).

RESPONSE

The five workers required for installation of the recycled water pipeline were not previously considered part of the construction workforce in the AFC. These five workers are estimated to work for a period of 1 month, beginning in July 2009. The total construction workforce has been updated in Revised Table 7.8-10 to include these five workers, as well as the ten workers associated with installation of irrigation controllers (see response to Data Request 75). The areas that have been updated are shaded in this table.

Neither workers required for construction of the recycled water pipeline nor workers required for installation of the irrigation controllers will affect the peak (May 2009) workforce numbers. Therefore, Table 7.8-9 (Project Labor Needs and Available Labor by Craft/Skill Peak Configuration) presented in the AFC would not be affected by the additional workers associated with the irrigation controllers or the recycled water pipeline.

Revised Table 7.8-10
Construction Staffing Schedule by Trade/Skill

Month after Notice to Proceed	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
Construction Month	12/29/ 2008	01/26/ 2009	02/23/ 2009	03/30/ 2009	04/27/ 2009	05/28/ 2009	06/29/ 2009	07/27/ 2009	08/31/ 2009	09/28/ 2009	10/26/ 2009	11/30/ 2009	12/28/ 2009	01/25/ 2010	02/22/ 2010	03/29/ 2010	04/26/ 2010	05/31/ 2010
Construction Trade/Skill																		
Carpenters	3	3	13	44	50	50	33	18	6	6	4	2	0	0	0	0	0	0
Iron Workers	1	2	18	67	80	85	63	47	51	65	66	53	38	33	33	6	6	0
Laborers	1	1	9	31	35	36	25	16	14	20	20	16	12	12	12	1	1	0
Millwrights	0	0	0	1	2	2	2	2	12	26	29	30	31	34	30	7	8	2
Pipe Fitters	0	0	0	33	66	84	94	71	76	83	77	75	70	55	31	24	27	9
Survey	6	2	2	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Painters and Insulators	0	0	0	0	0	0	0	0	0	8	8	8	7	4	4	4	4	0
Boiler Makers	0	0	2	7	9	9	7	5	6	7	7	6	4	4	4	1	1	0
Electricians	6	6	6	10	42	68	84	77	63	60	60	58	66	67	50	30	28	10
Bricklayers and Masons	0	0	0	0	0	0	2	2	2	2	0	0	0	0	0	0	0	0
Operator Eng	1	12	19	10	15	16	15	10	12	17	17	14	11	10	9	1	1	0
Sheetmetal	0	0	0	0	0	0	0	0	3	3	3	0	0	0	0	0	0	0
Construction Staff	10	10	9	16	18	20	20	20	20	20	20	20	20	17	16	13	13	12
Operators (Facility)	0	0	0	0	0	0	0	0	0	0	0	8	14	14	14	14	14	14
Total	**27**	**36**	**78**	**220**	**317**	**371**	**343**	**268**	**265**	**315**	**311**	**289**	**274**	**249**	**203**	**101**	**99**	**47**

Note:

Shaded text reflects updated information as of March 2008.

DATA REQUEST

75. Address whether additional temporary and/or full-time workers would be required to install irrigation controllers for existing DWA customers. If so, please also incorporate these workers into revised Tables 7.8-9 and 7.8-1 0 (see above discussion under Socioeconomics Data Request #3).

RESPONSE

Ten additional full-time workers would be required to install the irrigation controllers. The ten workers were not previously considered part of the construction workforce in the AFC. These ten additional workers are estimated to work for 6 months, beginning in July 2009. Revised Table 7.8-10 has been updated to include the additional workers associated with installation of the irrigation controllers.

Neither workers required for installation of the irrigation controllers nor workers required for construction of the recycled water pipeline will affect the peak (May 2009) workforce numbers. Therefore, Table 7.8-9 (Project Labor Needs and Available Labor by Craft/Skill Peak Configuration) presented in the AFC would not be affected by the additional workers associated with the irrigation controllers or the recycled water pipeline.

DATA REQUEST

76. Discuss whether there would be any changes in secondary employment (discussed on page 7.8-10 of the AFC) during either construction and operation due to the Revised Water Supply Plan.

RESPONSE

There will be changes in secondary employment during construction, but no changes in secondary employment during operation due to the revised water supply plan. The revised water supply plan requires ten additional workers for a period of 6 months, beginning in July 2009, and five additional personnel for a period of 1 month, beginning in July 2009.

This addition to the construction workforce is considered minimal in relation to secondary employment, because it is expected that all of the construction workers will commute daily to the proposed project site. Given the size of the labor force within commuting distance of the site, construction laborers are not expected to relocate for construction. The 15 construction personnel associated with the revised water supply plan would produce an estimated secondary employment effect of approximately two jobs. Therefore, construction secondary employment would change from 387 jobs to 389 jobs. The estimated operational secondary employment would not be affected by the revised water supply plan and will remain at 20 jobs, as described in AFC Section 7.8.2.3.

Technical Area: Water and Soil Resources
Author: Christopher Dennis, P.G.

BACKGROUND

Conservation Program

One component of the revised water supply plan is water conservation. The water supply plan proposes to conserve 1,100 acre-feet per year (AFY) of groundwater, an amount equal to the maximum estimated amount of groundwater that will be consumed by the power plant. This conservation is proposed to be accomplished by changing the water supply of the Palm Springs National Golf Course from groundwater to secondarily treated waste water. Currently, the Desert Water Agency (DWA) Wastewater Treatment Plant (WWTP) collects and treats sanitary sewer wastewater. The secondary treated wastewater is currently conveyed to the WWTP percolation ponds for recharge to the groundwater, with some loss to evaporation. A 900-foot pipeline is proposed to be built from the WWTP to convey secondary treated wastewater to a reservoir at the golf course for use as the golf course's irrigation water.

It is estimated that conversion from using groundwater to using secondary treated wastewater would eliminate consumption of approximately 680 AFY of groundwater used for irrigation purposes at the golf course. The water supply plan asserts that this conversion from using groundwater to using secondary treated wastewater for golf course landscaping conserves available freshwater stored in the underlying aquifer.

The proposed project site is located in the Coachella Valley Groundwater Basin. Within the Coachella Valley Groundwater Basin, the proposed project site is located in the Mission Creek Sub-basin while the golf course is located in the Whitewater Groundwater Sub-basin. Therefore, water conservation will not occur in the same sub-basin from which groundwater would be pumped and used.

To make up for the difference between the 1,100 AFY of groundwater used by the power plant and the 680 AFY "conserved" groundwater currently used by the golf course, the water supply plan proposes funding the installation of enough new irrigation controllers on houses to conserve the shortfall of approximately 420 AFY of water.

BACKGROUND DISCUSSION FOR RESPONSES TO DATA REQUESTS 77 THROUGH 87

Before responding to the specific data requests, the Applicant makes the following clarifications regarding the conservation element of the revised water supply plan.

First, regarding the quantity of freshwater to be conserved, the Applicant commits to conserve freshwater in an amount at least equal to the amount of water used by the power plant over time. It is anticipated that water use by the power plant will be substantially less than the annual maximum of 1,100 acre-feet per year (AFY). Thus, the conservation program does not necessarily commit CPV Sentinel to conservation of 1,100 AFY for the life of the project, because the project may not use that amount of water. Nevertheless, the conservation Memorandum of Understanding (MOU) specifies that the conservation program will be designed to conserve 1,100 AFY, to ensure that the program is sufficient to fully offset use of water by the project. In fact, the amount of freshwater conserved is likely to greatly exceed the amount of groundwater used by the project. This is because the project will convert the Palm Springs National Golf Course from use of groundwater to use of recycled water. As detailed below, this conversion alone will more than offset the use of groundwater by the power plant over the life of the power plant. During any period when sufficient conservation cannot be achieved at the golf

course, additional conservation will be achieved by installing irrigation controllers. If at the end of the project life, the conservation achieved at the golf course and with the irrigation controllers exceeds the amount of water used by the project, this surplus conservation will accrue to the benefit of the subbasin.

Second, regarding the source and quality of the recycled water to be used at the Palm Springs National Golf Course, the golf course will receive tertiary treated water from the Desert Water Agency (DWA)'s Water Recycling Plant. The City of Palm Springs Wastewater Treatment Plant (WWTP) provides primary and secondary treatment of the collected wastewater. The secondary treated effluent is either conveyed to DWA's Water Recycling Plant for tertiary treatment, or discharged to the City's WWTP percolation ponds. DWA processes what it receives from the WWTP at its own treatment facility, employing filtration and disinfection, and then distributes the recycled water for reuse as Title 22 defined tertiary-treated recycled water. The recycled water received by the golf course from DWA will comply with the provisions of California Code of Regulations Title 22 applicable to direct uses of recycled water.

Finally, regarding the location of the conservation program, it is important to keep in mind the program's purpose. The conservation program is intended to offset the project's use of groundwater consistent with CEC policy regarding the use of freshwater for power plant cooling. The conservation program is not intended to address any potential impacts on the Mission Creek Subbasin that might occur as a result of pumping of groundwater from the subbasin. Those potential impacts are addressed through the importation of water for recharge of the Mission Creek Subbasin, which is another element of the overall water supply plan for the project. Thus, since the purpose of the conservation program is to conserve freshwater generally to comply with CEC policy, the precise location of where the conservation occurs is irrelevant.

DATA REQUEST

77. Describe the effects of using secondary treated wastewater at the golf course on the local groundwater supply and quality. Include a discussion of evaporative losses, evapotranspiration, changes in groundwater recharge, and salt loading from wastewater percolation.

RESPONSE

As stated above, tertiary treated water will be used at the Palm Springs National Golf Course.

The use of recycled water by the golf course will reduce by a ratio of 1:1 the use of fresh groundwater that is currently pumped to supply the golf course. The quantity of secondary treated effluent percolated at the City of Palm Springs WWTP will be reduced by the amount of water diverted to the DWA Water Recycling Plant for tertiary treatment and delivery to the golf course. Evapotranspiration at the golf course is not expected to change. Although groundwater pumping will be reduced, this in essence will be offset by reductions in recharge from the percolation of secondary effluent at the City of Palm Springs WWTP. However, some minor reductions in evaporative losses at the percolation ponds is expected to occur because the reduced wetted area of the ponds may result in a very minor increase in groundwater storage.

The revised water supply plan is expected to have a positive impact on groundwater quality. The precise extent of that positive impact is difficult to predict, but a range can be defined. At a maximum, eliminating recharge of wastewater and applying it to irrigation will reduce total dissolved solids (TDS) loading to the subbasin by the difference in water quality between the wastewater and the conserved groundwater (see Table 77-1). At a minimum (assuming that

TDS loading occurs as a result of percolation of irrigation water), total TDS loading to the subbasin would be reduced by the amount of assimilable TDS (i.e., organic materials, nitrogen compounds, phosphorous, and other minerals that can be assimilated by turf grass) in the recycled water. The actual change in TDS loading to the sub-basin will be somewhere between the minimum and maximum. Therefore, groundwater quality will be somewhat improved based on the higher quality of the conserved groundwater relative to the recycled water.

Table 77-1
Water Quality Data

Constituent	Units	Well No. 14[1]	City of Palms Springs WWTP Effluent[1]	MCL
Total Hardness as $CaCO_3$	mg/L	240	200	NA
Calcium	mg/L	77	71	NA
Magnesium	mg/L	13	12	NA
Sodium	mg/L	32	76	NA
Potassium	mg/L	4.1	12	NA
Total Alkalinity	mg/L	170	68	NA
Hydroxide	mg/L	ND	ND	NA
Carbonate as CO_3	mg/L	ND	ND	NA
Bicarbonate as HCO_3	mg/L	200	83	NA
Sulfate SO_4	mg/L	91	110	250
Chloride	mg/L	24	100	250
Nitrate as NO_3	mg/L	13	34	45
Fluoride	mg/L	0.38	0.34	2
pH	Standard Units	7.5	7.6	6.5 to 8.5
Specific Conductance (E.C.)	μmhos/cm	570	750	NA
Total Dissolved Solids	mg/L	380	480	500
Aluminum	μg/L	ND	NA	50
Antimony	μg/L	ND	NA	6
Arsenic	μg/L	ND	NA	10
Barium	μg/L	120	NA	1,000
Beryllium	μg/L	ND	NA	4
Cadmium	μg/L	ND	NA	5
Chromium	μg/L	ND	NA	50
Copper	μg/L	ND	ND	1,000
Iron	μg/L	ND	ND	300
Lead	μg/L	ND	NA	15
Manganese	μg/L	ND	ND	50

Table 77-1
Water Quality Data (Continued)

Constituent	Units	Well No. 14[1]	City of Palms Springs WWTP Effluent[1]	MCL
Mercury	μg/L	ND	NA	2
Nickel	μg/L	ND	NA	100
Selenium	μg/L	ND	NA	50
Silver	μg/L	ND	NA	100
Thallium	μg/L	ND	NA	2
Zinc	μg/L	ND	ND	5,000
Boron	μg/L	ND	190	NA
Nitrate + Nitrite as N	μg/L	3,000	NA	10,000
Nitrite as N	μg/L	ND	NA	1,000
Cyanide	μg/L	ND	NA	150
Vanadium	μg/L	3.6	NA	NA

Notes:

1 Data provided by DWA. Data for Well No. 14 represents water quality of groundwater in vicinity of the Palm Springs National Golf Course.

ND = not detected
NA = not available or not analyzed
mg/L = milligrams per liter
μg/L = micrograms per liter
MCL = maximum contaminant level. Value shown is the minimum of EPA's primary or secondary drinking water standard or California Department of Health Service's level.

DATA REQUEST

78. Please discuss and document the yearly volumes of wastewater discharged to percolation ponds for the last 10 years at the DWA WWTP.

RESPONSE

The City of Palm Springs WWTP provides primary and secondary treatment of collected wastewater. The secondary treated effluent is either conveyed to DWA's Water Recycling Plant for tertiary treatment or discharged to the City of Palm Springs WWTP percolation ponds. DWA's Water Recycling Plant has the ability to process all secondary treated wastewater produced at the City of Palm Springs WWTP; however, there are not enough current or projected customers for tertiary treated water (i.e., recycled water). Therefore, any secondary treated sewage produced by the City of Palm Springs WWTP above and beyond DWA's recycled water customer demands is discharged into the City of Palm Springs WWTP percolation ponds for groundwater recharge. Table 78-1 illustrates the quantity of secondary treated sewage discharged into the City of Palm Springs WWTP percolation ponds for groundwater recharge over the last ten years.

Table 78-1
Volumes of Wastewater Discharged to Percolation Ponds at the City of Palm Springs WWTP (1998-2007)

Year	Water Discharged to Percolation Ponds at the City of Palm Springs WWTP (AF)
1998	6,485
1999	6,232
2000	5,838
2001	5,229
2002	4,445
2003	4,277
2004	3,852
2005	4,738
2006	3,315
2007	2,043

Source: Krause, 2008.

DATA REQUEST

79. Please address the projected availability of secondary (or higher quality) treated wastewater over the life of the project.

RESPONSE

As presented in DWA's Urban Water Management Plan (UWMP), future wastewater flows are projected to increase with population. The amount of wastewater to be collected and treated at the City of Palm Springs WWTP is anticipated to increase from approximately 8,100 acre-feet (AF) in 2010 to approximately 10,800 AF by 2030 (K&S, 2005) (see Table 79-1). The City's WWTP provides primary and secondary treatment of the collected wastewater. The secondary treated effluent is either conveyed to DWA's Water Recycling Plant for tertiary treatment or discharged to the City's WWTP percolation ponds (see Figure 79-1).

DWA's Water Recycling Plant has the ability to process all secondary treated wastewater produced at the City's WWTP; however, there are not enough current or projected customers for tertiary treated water (i.e., recycled water). Therefore, any secondary treated sewage produced by the City's WWTP above and beyond DWA's recycled water customer demands is discharged into the City's WWTP percolation ponds for groundwater recharge.

As shown on Figure 2 in the Revised Water Supply Plan (URS, 2008) and described in DWA's UWMP, current customers of recycled water include DWA's facilities, several golf courses, and the Palm Springs High School. In 2007, these customers used approximately 5,000 AF of recycled water for irrigation purposes. Due to a lack of customers for recycled water in low demand months, approximately 2,000 AF of secondary treated water were discharged to the City's WWTP percolation ponds (see Table 79-2). Therefore, approximately 29 percent of the wastewater collected and treated at the City's WWTP would have been available for new recycled water customers.

Since the amount of recycled water is dependent on the amount of wastewater collected and treated at the City of Palm Springs WWTP, which is projected to increase over the life of the proposed CPV Sentinel Energy Project (CPVS), the amount of recycled water available to the Palm Springs National Golf Course and other users will also increase. Tables 79-2 through 79-7 illustrate the quantities of wastewater and tertiary treated water that are projected to be available through 2030, based on projections provided in DWA's UWMP. These tables demonstrate that by approximately 2010, and most certainly by 2015, there would be sufficient quantities of wastewater (and therefore recycled water) available to meet the demands of the Palm Springs National Golf Course.

Table 79-1
Volumes of Water Handled at City of Palm Springs WWTP and the DWA Water Recycling Plant (Current and Projected)

Water	2005	2010	2015	2020	2025	2030
Wastewater Collected and Treated at City of Palm Springs WWTP (AFY)	7,300	8,100	8,800	9,500	10,100	10,800
Secondary Treated Water Percolated at City of Palm Springs WWTP (AFY)	4,450	2,100	2,800	1,500	2,100	2,800
Tertiary Treated Water Produced at DWA Water Recycling Plant (AFY)	2,850	6,000	6,000	8,000	8,000	8,000

Source: K&S, 2005

Table 79-2
Quantities of Wastewater and Tertiary Treated Water Based on 2007 Volumes

Month	City WWTP Influent (AF)	Discharge to Percolation Pond (AF)	Recycled Water Produced at DWA Plant (AF)	Palm Springs National Golf Course		
				Demand (AF)	Demand Met by Recycled Water (AF)	Demand Met by Groundwater (AF)
January	581	346	236	64	64	0
February	543	290	252	65	65	0
March	658	374	284	59	59	0
April	639	185	457	82	82	0
May	620	57	564	115	57	58
June	602	71	532	113	71	42
July	588	22	566	106	22	84
August	571	60	511	115	60	55
September	540	120	420	46	46	0
October	563	23	540	138	23	115
November	596	190	406	76	76	0
December	526	304	221	55	55	0
Total	7,027	2,042	4,986	1,034	680	354

Notes:

Quantities of City WWTP influent, discharge to percolation ponds, and recycled water produced by the DWA plant in 2007 provided by DWA.
Discharge to the percolation pond is equal to the excess secondary treated water available to be treated to tertiary level at DWA Plant for use at Palm Springs National Golf Course.
Recycled water produced at DWA Plant is used by current customers.
Palm Springs National Golf Course demand is assumed to be the same as the 2007 demand.
Palm Springs National Golf Course demand met by recycled water is the minimum of demand or discharge to percolation pond volume (i.e., excess water available).
Palm Springs National Golf Course demand not met by recycled water is assumed to be met by groundwater from onsite wells.

Table 79-3
2010 Projections of Wastewater and Tertiary Treated Water

Month	City WWTP Influent (AF)	Recycled Water Used by Current Customers (AF)	Excess Water (AF)	Discharge to Percolation Pond or Avail to Other Users (AF)	Palm Springs National Golf Course		
					Demand (AF)	Demand Met by Recycled Water (AF)	Demand Met by Groundwater (AF)
Jan	670	236	434	370	64	64	0
Feb	626	252	374	309	65	65	0
Mar	758	284	474	415	59	59	0
Apr	737	457	280	198	82	82	0
May	715	564	151	36	115	115	0
Jun	694	532	162	49	113	113	0
Jul	678	566	112	6	106	106	0
Aug	658	511	147	32	115	115	0
Sep	622	420	202	156	46	46	0
Oct	649	540	109	0	138	109	29
Nov	687	406	281	205	76	76	0
Dec	606	221	385	330	55	55	0
Total	8,100	4,989	3,111	2,106	1,034	1,005	29

Notes:

The City WWTP influent annual volume is from Table 22 in DWA 2005 UWMP; the monthly distribution is assumed to be the same as 2007.
Recycled water used by current customers is assumed to be the same as 2007.
Excess water is the difference between influent and recycled water used by current customers.
Discharge to the percolation pond or amount available to other users represents the amount of excess water not used by Palm Springs National Golf Course.
Assumes that Palm Springs National Golf Course has priority for use of excess water.

Total recycled water produced (source: MWD, 2005, Table 22):

Current Customers	4,989
Palm Springs National Golf Course	1,005
Others	6
total	**6,000**
Amount to percolation ponds	2,100

Table 79-4
2015 Projections of Wastewater and Tertiary Treated Water

Month	City WWTP Influent (AF)	Recycled Water Used by Current Customers (AF)	Excess Water (AF)	Discharge to Percolation Pond or Avail to Other Users (AF)	Palm Springs National Golf Course		
					Demand (AF)	Demand Met by Recycled Water (AF)	Demand Met by Groundwater (AF)
Jan	728	236	492	428	64	64	0
Feb	680	252	428	363	65	65	0
Mar	824	284	540	481	59	59	0
Apr	800	457	343	261	82	82	0
May	776	564	212	97	115	115	0
Jun	754	532	222	109	113	113	0
Jul	736	566	170	64	106	106	0
Aug	715	511	204	89	115	115	0
Sep	676	420	256	210	46	46	0
Oct	705	540	165	27	138	138	0
Nov	746	406	340	264	76	76	0
Dec	659	221	438	383	55	55	0
Total	8,800	4,989	3,811	2,777	1,034	1,034	0

Notes:

The City WWTP influent annual volume is from Table 22 in DWA 2005 UWMP; the monthly distribution is assumed to be the same as 2007.
Recycled water used by current customers is assumed to be the same as 2007.
Excess water is the difference between influent and recycled water used by current customers.
Discharge to the percolation pond or amount available to other users represents the amount of excess water not used by Palm Springs National Golf Course.
Assumes that Palm Springs National Golf Course has priority for use of excess water.

Total recycled water produced (source: MWD, 2005, Table 22):

Current Customers	4,989
Palm Springs National Golf Course	1,034
Others	-23 (round-off error)
total	**6,000**
Amount to percolation ponds	2,800

Table 79-5
2020 Projections of Wastewater and Tertiary Treated Water

Month	City WWTP Influent (AF)	Recycled Water Used by Current Customers (AF)	Excess Water (AF)	Discharge to Percolation Pond or Avail to Other Users (AF)	Palm Springs National Golf Course		
					Demand (AF)	Demand Met by Recycled Water (AF)	Demand Met by Groundwater (AF)
Jan	785	236	549	485	64	64	0
Feb	734	252	482	417	65	65	0
Mar	890	284	606	547	59	59	0
Apr	864	457	407	325	82	82	0
May	838	564	274	159	115	115	0
Jun	814	532	282	169	113	113	0
Jul	795	566	229	123	106	106	0
Aug	772	511	261	146	115	115	0
Sep	730	420	310	264	46	46	0
Oct	761	540	221	83	138	138	0
Nov	806	406	400	324	76	76	0
Dec	711	221	490	435	55	55	0
Total	9,500	4,989	4,511	3,477	1,034	1,034	0

Notes:

The City WWTP influent annual volume is from Table 22 in DWA 2005 UWMP; the monthly distribution is assumed to be the same as 2007.
Recycled water used by current customers is assumed to be the same as 2007.
Excess water is the difference between influent and recycled water used by current customers.
Discharge to the percolation pond or amount available to other users represents the amount of excess water not used by Palm Springs National Golf Course.
Assumes that Palm Springs National Golf Course has priority for use of excess water.

Total recycled water produced (source: MWD, 2005, Table 22):

Current Customers	4,989
Palm Springs National Golf Course	1,034
Others	1,977
total	**8,000**
Amount to percolation ponds	1,500

Table 79-6
2025 Projections of Wastewater and Tertiary Treated Water

Month	City WWTP Influent (AF)	Recycled Water Used by Current Customers (AF)	Excess Water (AF)	Discharge to Percolation Pond or Avail to Other Users (AF)	Palm Springs National Golf Course		
					Demand (AF)	Demand Met by Recycled Water (AF)	Demand Met by Groundwater (AF)
Jan	835	236	599	535	64	64	0
Feb	780	252	528	463	65	65	0
Mar	946	284	662	603	59	59	0
Apr	918	457	461	379	82	82	0
May	891	564	327	212	115	115	0
Jun	865	532	333	220	113	113	0
Jul	845	566	279	173	106	106	0
Aug	821	511	310	195	115	115	0
Sep	776	420	356	310	46	46	0
Oct	809	540	269	131	138	138	0
Nov	857	406	451	375	76	76	0
Dec	756	221	535	480	55	55	0
Total	10,100	4,989	5,111	4,077	1,034	1,034	0

Notes:

The City WWTP influent annual volume is from Table 22 in DWA 2005 UWMP; the monthly distribution is assumed to be the same as 2007.
Recycled water used by current customers is assumed to be the same as 2007.
Excess water is the difference between influent and recycled water used by current customers.
Discharge to the percolation pond or amount available to other users represents the amount of excess water not used by Palm Springs National Golf Course.
Assumes that Palm Springs National Golf Course has priority for use of excess water.

Total recycled water produced (source: MWD, 2005, Table 22):

Current Customers	4,989
Palm Springs National Golf Course	1,034
Others	1,977
total	**8,000**
Amount to percolation ponds	2,100

Table 79-7
2030 Projections of Wastewater and Tertiary Treated Water

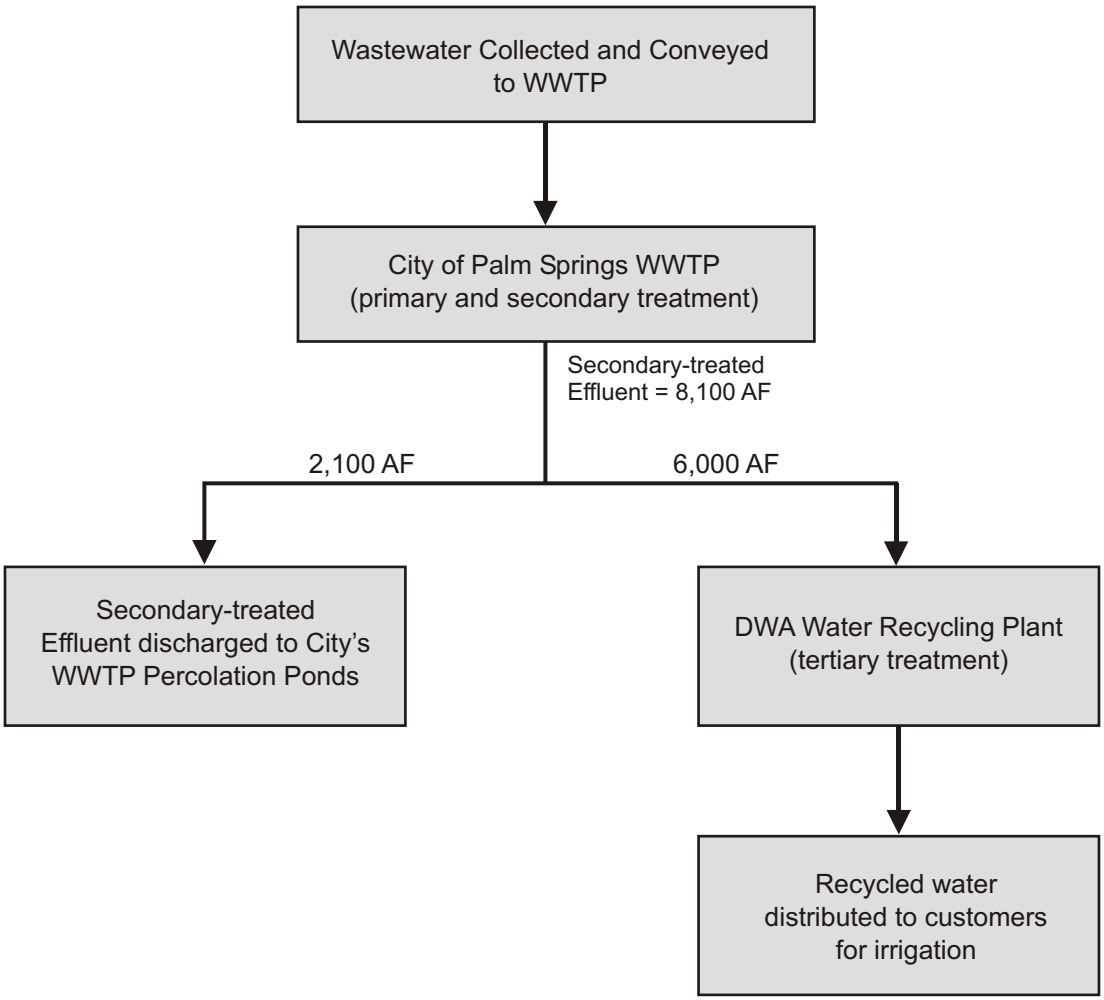
Month	City WWTP Influent (AF)	Recycled Water Used by Current Customers (AF)	Excess Water (AF)	Discharge to Percolation Pond or Avail to Other Users (AF)	Palm Springs National Golf Course		
					Demand (AF)	Demand Met by Recycled Water (AF)	Demand Met by Groundwater (AF)
Jan	893	236	657	593	64	64	0
Feb	835	252	583	518	65	65	0
Mar	1011	284	727	668	59	59	0
Apr	982	457	525	443	82	82	0
May	953	564	389	274	115	115	0
Jun	925	532	393	280	113	113	0
Jul	904	566	338	232	106	106	0
Aug	878	511	367	252	115	115	0
Sep	830	420	410	364	46	46	0
Oct	865	540	325	187	138	138	0
Nov	916	406	510	434	76	76	0
Dec	808	221	587	532	55	55	0
Total	10,800	4,989	5,811	4,777	1,034	1,034	0

Notes:

The City WWTP influent annual volume is from Table 22 in DWA 2005 UWMP; the monthly distribution is assumed to be the same as 2007.
Recycled water used by current customers is assumed to be the same as 2007.
Excess water is the difference between influent and recycled water used by current customers.
Discharge to the percolation pond or amount available to other users represents the amount of excess water not used by Palm Springs National Golf Course.
Assumes that Palm Springs National Golf Course has priority for use of excess water.

Total recycled water produced (source: MWD, 2005, Table 22):

Current Customers	4,989
Palm Springs National Golf Course	1,034
Others	1,977
total	**8,000**
Amount to percolation ponds	2,800



WASTEWATER FLOW DIAGRAM

CPV Sentinel Energy Project
April 2008 — CPV Sentinel, LLC
28067168 — Riverside County, California

URS

FIGURE 79-1

4/10/08 vsa..\CPV Sentinel 2008\Data Request 79\79-1_ww flow dia.cdr

DATA REQUEST

80. Please discuss the management of the secondary treated wastewater in the reservoir at the golf course and the RWQCB requirements for treating this water prior to use.

RESPONSE

Secondary effluent will not be distributed to the golf course—only tertiary treated recycled water that meets Title 22 standards will be delivered to the golf course. The recycled water served by DWA complies with all Regional Water Quality Control Board and California Department of Public Health requirements for use at the golf course. No additional treatment for the management of water from the onsite storage lakes is required by these agencies.

DATA REQUEST

81. Please discuss when and how the water conservation program would be implemented; and who would be the administering entity.

RESPONSE

The conservation program would be implemented primarily in advance of power plant operation.

The infrastructure necessary to deliver recycled water to the Palm Springs National Golf Course will be constructed by the Applicant in conjunction with construction of the power plant, and would be in place prior to operation of the power plant. As the supplier of recycled water to the golf course, DWA will be the administering entity of this element of the conservation program.

Prior to commencement of operation of the power plant, a program will be in place to begin distribution of irrigation controllers. Again, DWA will be the administering entity for this program.

The key elements of the irrigation controller program are the following:

- Selection of Participants
  - All participants will be customers of either the DWA or Mission Springs Water District (MSWD), depending on their location.
  - All participants must have a water supply/sewage account in good standing and the site must have had a minimum of 1 year of monthly water consumption history to allow a comparison of pre- and post-irrigation management controller water consumption.
  - The participants must have a fully functioning irrigation controller.
  - Pre-inspection will be conducted to verify that the existing controller and irrigation system is operational and working properly.

- Installation (by a trained technician)
  - Copy the existing schedule from the controller or ask for the customer's summer watering schedule.
  - Remove the existing irrigation controller.
  - Install the new controller.
  - Program the controller.
  - Activate each irrigation valve and observe the irrigation of each station. Point out to the customer any irrigation system deficiencies.
  - Instruct the customer on the operation of the evapotranspiration controller.
  - Fill out the customer information sheet with the start times and run times. Take pictures to document installation.

- Post Installation
  - Respond to calls from customers reporting issues. Determine if the issue is caused by irrigation system failures or incorrect reprogramming of the controllers by the customer. Correct any deficiencies in the controller and return the programming to the original settings.

- Monitoring of results
  - A control group will be established to compare water use regardless of the differences in yearly weather. A control house will be randomly selected close to each participating house to ensure that the following characteristics are shared:
    - Landscape area relatively consistent

- Plant material type relatively consistent
- Irrigation systems are similar in age and type
- At least 1 year of historical water use information available

– The local water purveyor (DWA or MSWD) will record the annual water consumption of each participant and each control house. The local water purveyor will compute the annual water savings, making adjustments for the annual weather impacts on water use. The results will be reported by the local water purveyor annually to CPV Sentinel.

DATA REQUEST

82. Please discuss how the conserved water would be measured, recorded, and reported, so that water conservation measures can be evaluated.

RESPONSE

Freshwater Conservation at the Palm Springs National Golf Course. The recycled water supply agreement between DWA and the golf course will stipulate that the first priority source of water for irrigation will be recycled water, and that groundwater wells will be used only if sufficient recycled water is not available. Minor amounts of groundwater may be used for the purpose of testing, operating, and maintaining the groundwater wells and distribution system. A meter will be installed on the recycled water branch supply line to the golf course. Monthly meter readings will be taken and recorded by DWA. Monthly water use reports will be generated annually by DWA and provided to CPV Sentinel to document the actual displacement of freshwater pumping achieved at the golf course.

Freshwater Conservation Using Irrigation Controllers. The monitoring program will draw on the experience gained in the successful pilot program conducted by the Coachella Valley Water District (CVWD) with its Final Report dated June 21, 2007. In addition, lessons learned in subsequent programs by both CVWD and DWA will be applied to the monitoring and enforcement program in which CPV Sentinel will participate. See the response to Data Request 81 for a more detailed explanation of the monitoring program for the irrigation controllers.

Pumping by CPV Sentinel. Records will be compiled by CPV Sentinel for groundwater pumping as required by the relevant conditions of certification.

Annual Net Freshwater Conservation Report. CPV Sentinel will prepare an annual report of the net freshwater conserved and submit this annual report to the CEC. This report will include both the current annual amounts of freshwater conserved and the cumulative net amounts of freshwater conserved under the CPV Sentinel sponsored freshwater conservation programs.

For example for a given year, if:

G = Golf course freshwater conserved
I = Total irrigation controller program freshwater conserved
O = Other freshwater conserved (if other programs are implemented)
P = Groundwater pumped by CPV Sentinel

Then, the annual net freshwater conserved (ANC) would be:

$$ANC = G + I + O - P$$

If ANC1 is the first year annual net freshwater conserved, ANC2 is the second year, and so forth, then the cumulative net project freshwater conserved (CNC) would be:

$$CNC = ANC1 + ANC2 + ANC3, \text{ etc.}$$

At no time during the life of the project will the CNC be less than zero. In the highly unlikely event that the cumulative net freshwater conserved begins to decline to near zero, CPV Sentinel would undertake additional freshwater conservation programs to increase the conservation of freshwater. As noted in the response to Data Request 79, the Palm Springs National Golf

Course alone is expected to conserve almost the entire amount of the peak annual water consumed by the project. The project is not expected to operate at this peak consumption every year but rather only occasionally. The average annual project dispatch is 15 percent, which corresponds to 550 AFY of water consumption. The target freshwater saving per irrigation controller as presented in the February 19, 2008, Supplement to the AFC is 0.1 AFY, whereas the CVWD Pilot Program reported an average savings of 0.147 AFY. Actual annual and cumulative net freshwater conservation is expected to be greater because the Supplement to the AFC (URS, 2008) assumed a more conservative freshwater saving per irrigation controller. It is therefore expected that the cumulative net freshwater conserved will continue to increase during the life of the project to a large positive value. CPV Sentinel proposes that after five consecutive years of increasing cumulative net freshwater conservation results, the annual reports to the CEC would be suspended. CPV Sentinel would continue to record the freshwater conservation data and would then submit reports to the CEC only upon request.

DATA REQUEST

83. Please discuss how the operability of the irrigation controllers would be maintained and how continued use of these controllers would be assured over the life of the power plant operation.

RESPONSE

Please see the response to Data Request 81.

DATA REQUEST

84. Please discuss how funding will be ensured for maintaining the operability, use, and record keeping for the irrigation controllers.

RESPONSE

Please see the response to Data Requests 81 and 82.

DATA REQUEST

85. Please discuss the rationale for developing a water conservation program in the Whitewater Groundwater Sub-basin rather than in the Mission Creek Sub-basin, from which groundwater would be pumped.

RESPONSE

As stated in the background section of these responses, the objective of the water conservation program is to conserve freshwaters of the State in compliance with CEC policies regarding the use of freshwater for power plant cooling. In theory, the conservation could occur anywhere in the state, and still achieve the intended objective. CPV Sentinel chose to partner with DWA to achieve the conservation in the Coachella Valley rather than in other areas of the State. The conservation program is not intended to mitigate any impacts that the project's pumping could potentially cause in the Mission Creek Subbasin. That mitigation is achieved by the recharge of imported water into the subbasin to more than replace project-specific groundwater pumping. Some conservation of freshwater may in fact occur within the Mission Creek Subbasin because irrigation controllers may be installed within that Subbasin. In any event, the compliance with CEC policy is unaffected by the choice of location for the conservation programs as long as it serves to conserve freshwater in the State of California.

DATA REQUEST

86. Two WWTPs are discussed in the revised water supply plan – the DWA WWTP and the City of Palm Springs WWTP. It is not clear which WWTP will be used as a source of treated wastewater. Please explain which WWTP will be used.

RESPONSE

Section 2.0 and Figure 2 of the Revised Water Supply Plan (URS, 2008) describe the relationship between the City of Palm Springs WWTP and the DWA Water Recycling Plant, and identify the proposed source of recycled water.

The City of Palm Springs provides primary and secondary wastewater treatment at the City of Palm Springs WWTP. This water is then piped to the DWA's Water Recycling Plant for tertiary treatment. Therefore, the source of the tertiary treated water to the Palm Springs National Golf Course would be from DWA's Water Recycling Plant.

DWA's Water Recycling Plant currently has a 10-million-gallon-per-day capacity, but is designed for an ultimate capacity to treat 15 million gallons per day. DWA provides retail service of this recycled water using a recycled water pipeline network. Figures 3 and 4 of the Revised Water Supply Plan (URS, 2008) show the proposed connection of the Palm Springs National Golf Course to the DWA recycled water main located along South Murray Canyon Drive.

DATA REQUEST

87. Table 1 indicates the golf course uses 1,034 AFY of water. The text of the water plan states that the golf course uses 680 AFY of water. Please explain the difference and provide documentation showing the golf course's annual water use during the last ten years.

RESPONSE

As presented in Table 1 of the Revised Water Supply Plan (URS, 2008) and Table 79-2, the Palm Springs National Golf Course used approximately 1,034 AF of groundwater in 2007. This water was pumped from the golf course's private groundwater wells located on the property.

Table 1 in the AFC supplement and Table 79-2 in this document also show the amount of secondary treated water that was percolated to the City's WWTP percolation ponds in 2007 (2,043 AF) and potentially available to meet the demands of the golf course. As shown in the tables, in 2007 there was insufficient recycled water available to meet the golf course's peak month demands. Based on supply and demand patterns in that year, only approximately 680 AF of the golf course's 1,034 AF annual demand could have been supplied with recycled water. The remaining demands of the golf course in peak-demand months would have been supplied by groundwater pumping.

As further described in the response to Data Request 79, the amount of wastewater collected and treated at the City's WWTP and DWA's Water Recycling Plant is projected to increase. Tables 79-3 through 79-7 show that sometime between 2010 and 2015, there would be sufficient quantities of recycled water available to meet the Palm Springs National Golf Course's irrigation demands of approximately 1,034 AFY. Until that time, the onsite wells would be used to supplement the water supply to meet peak irrigation demands.

Table 87-1 shows annual groundwater production volumes at the Palm Springs National Golf Course from 1998 to 2007, provided by the DWA (Krause, 2008). DWA indicated that the Palm Springs National Golf Course and the Indian Canyons Golf Resort (on the southern side of South Murray Canyon Drive) historically shared a water interconnection, allowing water pumped by the Palm Springs National Golf Course to flow to the Indian Canyons Golf Resort. Private wells used by the Indian Canyons Golf Resort began failing and in October 2001 DWA installed a 6-inch water service to assist the golf course in meeting their water demands. In 2004, DWA installed an additional 12-inch water service to the Indian Canyons Golf Resort. DWA advised that the Palm Springs National Golf Course subsequently ceased supplying the Indian Canyons Golf Resort with groundwater.

Table 87-1
Annual Groundwater Production at the
Palm Springs National Golf Course (1998-2007)

Year	Groundwater Production at the Palm Springs National Golf Course (AF)
1998	1,129
1999	1,469
2000	1,237
2001	1,432
2002	1,216
2003	973
2004	1,039
2005	952
2006	1,035
2007	1,057

Source: Krauss, 2008.

BACKGROUND

Implementation Program

A component of the proposed water supply plan proposes to pay the replenishment costs required by the DWA and to pay DWA to recharge available surface water in an amount equal to project demand using freshwater brought into the Mission Creek Sub-basin.

This water would be used to replenish groundwater extracted from wells at the project site. Existing agreements (Replenishment Program) require a replenishment fee to be paid for any groundwater pumped from the sub-basin (i.e., all pumped groundwater is metered) but do not require that the pumped groundwater be replenished on a one-to-one basis. The Implementation Program proposes purchasing freshwater from an unspecified supplier who participates in the State Water Project (SWP). Colorado River Water would be used to replenish groundwater pumped and used at the project site.

DATA REQUEST

88. Please discuss the details that would be involved in purchasing freshwater from an unspecified participant in the SWP program. Please include in this discussion how the unspecified SWP program participant will make up for the loss of water, whether it would be a change of business, the use of groundwater, water use efficiency, etc.

RESPONSE

Like all parties that pump groundwater from the subbasin, the Applicant will pay to DWA the existing replenishment fee, which is used by DWA to import water for replenishment of the subbasin. The Implementation Agreement will result in the importation of water in addition to that imported by DWA with the replenishment fee, and will ensure that groundwater pumped by the project is fully replaced with imported water recharged into the Mission Creek Subbasin. Under the Implementation Agreement, DWA will purchase new water supplies from established storage programs south of the Delta. In general terms, these storage programs have accumulated non-State Water Project (SWP) water in groundwater storage through prior conservation measures and have approval to transfer these water supplies from storage into the SWP. Water from storage in these programs would either be delivered directly into the SWP or delivered to end users of SWP water in lieu of their use of SWP supplies. Water so delivered either directly or indirectly into the SWP would be delivered to Metropolitan Water District (MWD) in exchange for delivery of Colorado River water to DWA under the existing MWD/DWA exchange program. These new exchange supplies would be recharged in the Mission Creek Subbasin. Additional details on the potential sources of water that are under consideration have been provided to the CEC in a confidential submittal.

DATA REQUEST

89. Please discuss whether the source of water to be purchased is classified as "surplus" SWP water.

RESPONSE

None of the sources currently in acquisition is "surplus" SWP water. In general, the water sources are from surplus non-SWP water currently stored in a non-SWP storage program. Thus, the water exists and is available. Reliability of the sources is not at issue because the water is presently stored.

DATA REQUEST

90. Please discuss the source and reliability of the water supply that will be delivered for recharge under the Implementation Program.

RESPONSE

Please see the responses to Data Requests 88 and 89.

DATA REQUEST

91. Please discuss the availability and reliability of the Colorado River water that would be used as an exchange for SWP water as proposed in the Implementation Program.

RESPONSE

MWD will at all times have adequate water supplies in the Colorado River Aqueduct (CRA) to meet its exchange obligations with DWA and CVWD. MWD's most recent forecast for the supply of water in the CRA is provided in Table A.3-7 of MWD's 2005 Regional UWMP (MWD, 2005) and summarized in Table 91-1. Those projections indicate a minimum supply of Colorado River water in the CRA in 2010 of 845,000 AFY, including 526,000 AFY from MWD's Fourth Priority Right and 319,000 AFY from additional water supplies, such as the Imperial Irrigation District (IID)/MWD conservation program, the lining of the Coachella and All-American Canals, The San Diego County Water Authority/IID Conservation Program, and the Palo Verde Irrigation District (PVID) Land Management Program. The projected supplies in 2030 are a minimum of 917,00 AFY, which includes 503,000 AFY from MWD's Fourth Priority Right and 490,000 AFY from the other water supplies. These supplies are far in excess of the 200,000 AFY maximum necessary to satisfy exchange water delivery obligations to DWA and CVWD.

In December 2007, The United States Bureau of Reclamation adopted shortage contingency plans for the Colorado River to address the worst drought in recorded history. The shortage provisions protect California's first four priorities of use of Colorado River water (4.4 million AFY), and thus protect MWD's Fourth Priority Right. Moreover, the shortage plan does not contemplate measures that would interfere with the conservation program transfer water included in MWD's projections. Under the shortage provisions, MWD may elect to forego some of its supplies of Colorado River water, but in no circumstances should that prevent MWD from honoring its exchange obligations with DWA (USBR, 2007).

Table 91-1
Minimum Projected Supplies (AFY) for Colorado River Aqueduct

Program	2010	2015	2020	2025	2030
MWD Priority 4 Right[1]	526,000	503,000	503,000	503,000	503,000
Conservation/Transfer/ Other Programs					
IID/MWD Conservation Program[2]	85,000	85,000	85,000	85,000	85,000
PVID Land Management Program[3]	70,000	70,000	70,000	70,000	70,000
SDCWA/IID Transfer	70,000	100,000	190,000	200,000	200,000
Coachella and All-American Canal Lining	94,000	94,000	94,000	94,000	94,000
Coachella SWP/QSA Transfer	0	(35,000)	(35,000)	(35,000)	(35,000)
Subtotal – Conservation/ Transfer/Other Programs	319,000	314,000	404,000	414,000	414,000
Total	**845,000**	**817,000**	**907,000**	**917,000**	**917,000**

Source: Table A.3-7 from MWD, 2005

Notes:

1. MWD Priority 4 apportionment has been delivered since 1939 and will continue to be available in perpetuity because of California's senior water rights to use Colorado River water.
2. The IID/MWD conservation program began in 1990. The existing agreements have extended the initial term to at least 2041 and guarantee MWD a minimum of 80,000 AFY].
3. Participating farmers in the PVID are being paid to reduce water use by not irrigating a portion of their land. These water savings are made available to MWD. The program is estimated to provide up to 111,000 AFY of Colorado River water. The RUWMP projects a minimum of 70,000 AFY for years 2010 through 2030.

DATA REQUEST

92. Please discuss whether existing agreements between the SWP Program, Metropolitan Water Agency, or any other involved party and the DWA allow purchase of this extra water, or whether there is a ceiling on the amount of water the DWA can obtain through the SWP.

RESPONSE

The water to be purchased by DWA under the implementation agreement can be transported, within the capacity rights that DWA owns, to the SWP and the exchange agreements with the MWD. DWA has specific rights to receive 55,750 AFY of SWP water but cooperates with CVWD to receive a combined amount of up to 200,000 AFY of SWP water and an equal amount of exchange deliveries from the MWD. Because the current water supplies available to DWA for transport (and to DWA together with CVWD relative to the combined amount) are much less than the amount of transportation rights that are held, there is available capacity within the SWP and within the exchange agreements rights to receive all DWA's existing supplies plus deliveries under the Applicant's implementation agreement. The definitive agreements will contain scheduling protocols to demonstrate how the water from the implementation agreement will be delivered without impacting the ability of DWA to receive other waters.

DATA REQUEST

93. Please provide a copy of the agreements between the Applicant and DWA that ensure there is access to surplus water beyond what is required for replenishment.

RESPONSE

The existing Well Metering Agreement and the Implementation MOU allow the Applicant to work through DWA to acquire the new water supplies described in the responses to Data Requests 89 through 91. Additional details will be provided in the Definitive Agreement(s) between Applicant and DWA, and the Definitive Agreements between DWA and the water sellers. All other agreements are in place.

DATA REQUEST

94. Please describe DWA groundwater recharge facilities in the Mission Springs Sub-basin and whether they have the capacity to recharge the proposed volumes when water is available.

RESPONSE

The DWA spreading grounds have the capacity to receive peak spreading of approximately 200 AF per day and sustained capacity to spread approximately 100 AF per day. The Applicant's estimated 16,500 AF of water required under the implementation agreement can be spread into the basin in between 83 and 165 days over the next 30 years. This scheduling will be consistent with the groundwater modeling for CPV Sentinel already provided to the CEC. Spreading will not necessarily occur on a schedule that matches the timing in which the new sources of water are introduced into the SWP. Operating protocols between the seller and the California Department of Water Resources establish the schedule for deliveries from the new sources and the SWP. MWD determines when water is made available to DWA and DWA will manage the schedule of deliveries of water into the Mission Creek Subbasin as noted above.

DATA REQUEST

95. Please provide a schedule for when DWA recharge activity would occur in conjunction with the volume of water that would be recharged.

RESPONSE

The exact timing of recharge activities cannot be fully described. Supplies would be exchanged between MWD and DWA, whose agreement provides flexibility to MWD regarding the timing of deliveries. Consequently, the timing of deliveries to DWA will not directly correspond to the timing of MWD's acceptance of new water deliveries from sources on the SWP. Moreover, DWA can accept deliveries from MWD into either the Whitewater or Mission Creek Subbasin. Thus, under the implementation MOU, DWA has even greater flexibility in scheduling spreading water deliveries of Applicant's water into the Mission Creek Subbasin. Scheduling protocols will be further defined in the definitive agreement with DWA. This scheduling will be consistent with the groundwater modeling for CPV Sentinel already provided to the CEC.

Prior modeling of the groundwater extractions and recharge simulate the possible effects on the groundwater basin from variations in the timing of groundwater withdrawals compared to groundwater recharge. As a conservative estimate of the worst-case scenario, the simulations include possible withdrawals of maximum pumping for periods of up to 5 years without recharge, and recharge volumes of up to five times the maximum extractions in a single year. These assumptions conservatively describe the maximum mismatch in possible scheduling of extractions versus recharge rates that could occur in the future (see also the response to Data Request 94).

DATA REQUEST

96. Please discuss the potential impacts to the physical and chemical quality of the Mission Creek groundwater when replenished by lower quality Colorado River Water.

RESPONSE

As large volumes of Colorado River water are used by others to recharge the Mission Creek Subbasin, the physical and chemical characteristics of groundwater are likely to exhibit more of the characteristics of Colorado River water over time, by some unquantifiable amount. However, the effects on the subbasin water quality from spreading Colorado River water to replace groundwater pumping by the power-generation project over its 30-year useful life are likely to cause a minimal if measurable change in subbasin water quality.

The water quality within the Mission Creek Subbasin is quite variable, with TDS concentrations ranging from 240 milligrams per liter (mg/L) to 530 mg/L and total hardness ranging from 100 to 260 mg/L (MSWD, 2006). The DWA monitoring well is most representative of the natural subbasin groundwater quality (Richard C. Slade & Associates, 2000). Groundwater samples from the DWA monitoring well indicate TDS is approximately 412 mg/L and total hardness is 251 mg/L. This compares to Colorado River water TDS ranging from 604 to 672 mg/L and total hardness ranging from 291 to 316 mg/L (Richard C. Slade & Associates, 2000).

Colorado River water is higher in TDS and in hardness than the groundwater in the vicinity of the spreading grounds. Colorado River water has a characteristic of calcium sulfate hardness, whereas water within the groundwater basin has a characteristic of calcium carbonate hardness. Colorado River water pH is generally in the range of 8.1 to 8.4, whereas pH in samples from the DWA monitoring well (near the spreading grounds) is near 7.8. Although Colorado River water is slightly higher in TDS, total hardness, sulfates, and chlorides than the natural groundwater, it is lower in nitrates, iron, and manganese than the typical subbasin groundwater. Most importantly, the chemical and physical makeup of Colorado River water meets all primary and secondary standards for drinking water.

The extent to which water quality will change as a result of spreading Colorado River water into the basin cannot be precisely predicted. In the Whitewater Subbasin, with more than 30 years of spreading and volumes of more than 2 million AF of Colorado River water, TDS changes have generally been modest in wells nearest the spreading grounds, and undetectable in wells at greater distance. This may be illustrative of the types of water quality changes that may occur in the Mission Creek Subbasin with proportionally similar amounts of spreading over the next 30 years. Note that the quantity of project-specific recharge will only be a small percentage of what is normally recharged at the DWA spreading grounds by others.

The effects of spreading large quantities of Colorado River water in the Mission Creek Subbasin (with or without the project) will likely be seen in the upper area of the basin over time, and be less detectable in the lower area of the basin. These effects will depend, though, upon the pumping patterns and recharge volumes within the basin. Moreover, the establishment of equilibrium conditions between natural mineral deposits in the saturated and unsaturated zones of the aquifer system may tend to buffer changes in water quality that would occur in a direct mixing of the different waters. Wells drawing at depth in the basin will tend to mix recharge water with natural water throughout the basin.

Whatever effects are ultimately seen, project-specific impacts from recharge of the basin under the Implementation Agreement will be insignificant compared to either the natural fluctuations in

water quality throughout the basin or to the effects seen from the recharge with Colorado River water attributable to pumping by others. The MSWD UWMP and MSWD Master Plan forecast future recharge in the Mission Springs subbasin with Colorado River water of 450,000 AF over the next 30 years without the CPVS. This compares to a maximum potential total recharge volume of 33,000 AF over 30 years under the Implementation Agreement to offset projected pumping of the Sentinel project.

The spreading of Colorado River water within the Mission Creek Subbasin with or without the power generation project does not have the potential to cause water quality within the basin to violate any drinking water standard, nor to degrade the usability of the basin water supply for domestic and municipal uses. If development of the basin continues as projected and recharge volumes meet or exceed the volumes forecast by others, some changes in basin-water quality from the spreading of Colorado River water may be realized. However, the volume of water spread as a result of the power plant will cause either an immeasurable or insignificant change in subbasin water quality.

DATA REQUEST

97. Please discuss the conformance of purchasing additional SWP water for recharge of the Mission Creek Sub-basin with the April 8, 2003 Replenishment Agreement and December 7, 2004 Settlement Agreement made between the Coachella Valley Water District, the DWA, and the Mission Springs Water District.

RESPONSE

The Implementation Agreement is based on the structure established by the 2001 Well Metering Agreement. That structure allows the developer of the CPVS to purchase imported water that DWA would bring into the Mission Creek Subbasin over and above the imported water that DWA purchases for the benefit of the rest of its service area. Because the project developer would fund the purchase of such water, it would be dedicated to the CPVS. This project-specific structure was established prior to the 2003 Replenishment Agreement and the 2004 Settlement Agreement.

Neither of those agreements prohibit the water supply program contemplated for the CPVS. Both agreements concern imported water purchased by DWA with its replenishment assessment funds, not additional funds supplied by a project developer. Thus, any amounts of replenishment deliveries that are made on behalf of the power plant through the payment of the Replenishment Assessment (well metering charge) to DWA are subject to the Replenishment Agreement and the Settlement Agreement. However, as noted in the implementation MOU, deliveries of "new" quantities of water, purchased by DWA on behalf of the power plant, are to be spread into the Mission Creek Basin Subbasin over and above the amounts of replenishment deliveries determined by the protocols of the Settlement Agreement.

Moreover, these "new" quantities of water are small in comparison to the imported water that DWA and CVWD already use to recharge the Mission Creek Basin Subbasin. Accordingly, the Mission Creek Basin Subbasin can easily accommodate the addition of this water as it has more than enough vacant capacity. Furthermore, the "new water" is from the same source (the CRA) as the water already brought in by DWA and CVWD to recharge the subbasin. DWA and CVWD have always contemplated trying to increase the quantity of water available for recharge operations and are in full support of the Implementation Agreement. Thus, the introduction of this relatively small additional quantity is entirely consistent with the continuing efforts of both agencies to bring in as much water as possible.

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APPENDIX A
BIOLOGISTS' RÉSUMÉS

Xeric Specialties Consulting **Dave Silverman - Plant Ecologist**
437 Calle De Collie, Ridgecrest, CA 93555, (760) 384-8535 or (760) 608-3105, xeric@mchsi.com or xsl@iwvisp.com

Qualifications:

Services in botanical and biological assessments, mapping, research and reporting. Experienced in field identification, keying-out and determining plant taxa of the southwest region and southern California; able to on-site field ID 10,000+ regional plant taxa. Experienced at working under permits, biological opinions, MOUs, etc. Consultant and contributor on rare plant taxa to CNPS rare plant program since 1996. Worked on desert tortoise population trend studies and mitigation projects in AZ, CA, NV and UT, between 1990 and 2000 mostly, including permits, and 500+ tortoises processed for field data, 800+ field days dedicated to tortoise survey during this time. Active attendance of scientific symposiums and workshops, wildlife conservation meetings and numerous Jepson Herbarium-sponsored workshops concerning plant family. Familiar with southwest geography, geology and mineral types, experienced at visually identifying common and charcteristic crystal-mineral-rock components in soils and strata. Experienced at interpreting maps, writing physiognomic and vegetation descriptions. Accurate and reliable in collecting detailed data from transects, grids and other sampling methods. Skilled computer user and data handler (ten years of professional experience), with additional experience in biology-related applications. Proficient at collecting field data with maps and differentially corrected GPS or using aerial photos, rendering to graphics in CAD and GIS, and conversion to other file formats. Equipped with all necessary software and hardware for front-end GIS work. Avid hiker, traveler and photographer of the desert since 1978. All equipment necessary to conduct extended field work, under adverse conditions and cross-country travel, including 4WD vehicles. Excellent field skills. EMT qualified field member of the China Lake Mountain Rescue Group from 1985-1992. Liability Insurance through Hartford Casualty Insurance Co.

Recent Experience:

April, 1998 to Present. Botanical/ Consultant. Various projects, primarily botanical and TnE fauna field surveys, writing/reporting, vegetation mapping, and GPS data collection/GIS development. Recent clients include :

Southwest Botanical Research, Cino Valley, AZ (Marc Baker, 928-636-0252)
Kleinfelder and Associates (Chris Enyedy, 559-486-0750)
Tetra Tech EM Inc. San Francisco (Cindi Rose, 415-222-8286)
Aspen Environmental Group, Agoura Hills and San Francisco, CA (Chris Huntley, 818-597-3407)
URS Corp. Oakland, Fresno, San Diego, Santa Ana, and Las Vegas offices (Amanda Matthews-Neiswenter (702) 951-3318)
Las Vegas Valley Water District (Seth Shanahan, 702-822-3314)
Resource Design Technology, Eldorado Hills, CA (Dave Brown, 916-983-9193)
Wildland International, Las Vegas, NV (Dan Maleug, 702-657-9711)
ESR Corp., Oakhurst, CA (Scott Larson, 559-683-5335)
Phoenix Biological Consulting, Wrightwood, CA (Ryan Young 661-261 3390)
Naval Air Weapons Station (NAWS) China Lake (Tom Campbell, 760-927-1515)

Highlights of Recent Experience:

present; Southwest Botanical Research, conducting rare *Sclerocactus* and *Coryphantha* cactus surveys in the Tucson area

present; Tom Volk and Associates, research and writing of biological opinions for sensitive biota in the Tehachapi area of south-central CA, for EIR process for WZI Materials sand and gravel mine.

4/06 to present; URS Corp. Las Vegas Office, NV. Botanical/rare plant surveys for Toquap Wash Energy and Coyote Springs project

4/06 to 5/06; Tetra Tech EM Inc. Biological surveys for hazardous site assessment at China Lake Naval Air Warfare Station.

3/06. Kleinfelder and Associates. Desert tortoise and general biota survey for Terminal Project, Boron, Kern Co. CA.

9/05 to 3/06; Aspen Environmental Group. Mapped GIS inventory tree survey in Griffith Park for mitigation measures required for DWP proposed water line, Los Angeles, CA.

10/05 to 12/05; Resource Design Technology. Botanical Surveys and consulting services for revegetation/reclamation plan for F.W. Aggregates mine, southeast of Lone Pine, CA.

12/04 to 5/05; Southern Nevada Water Authority - Las Vegas Wash Coordination Committee. Field ground-truth vegetation mapping project utilizing national NRCS vegetation mapping protocol methods.

5/04 to 10/05; Aspen Environmental Group. Botanical and wildlife surveys for Angeles National Forest, for various management release sites, plantations, fuel stands, etc. Sensitive plant species surveyed for included *Swertia neglecta, Calochortus plummerae, C. palmeri, Castilleja gleasonii, Linanthus concinnus, Perideridia pringlei, Galium jepsonii, Lupinus excubitus johnstonii, Nemacladus gracilis,* and *Arenaria macradenia var. kuschei.*

4/04 to 4/05; URS Corp – San Diego. Botanical and habitat surveys for initial phase of HCP planning for MWD Colorado River Aqueduct and associated properties in Riverside and SE San Bernadino Co. Sensitive plant species surveyed for included *Ditaxis californica, D. clariana, Teucrium glandulosum, Cryptantha costata, C. holoptera,* and *Linanthus maculata.*

05/03 to 3/06; Aspen Environmental. Botanical surveys for various project sites along DWR California Aqueduct in Los Angeles, San Bernadino and Kern Co.s. Sensitive plant species surveyed for included *Erodium macrophyllum, Scutellaria bolanderi austromontana,* and *Calochortus clavatus*.

6/02 to present; Southern Nevada Water Authority - Las Vegas Wash Coordination Committee. Vegetation and floral assessment, quantitative sampling design, collections and voucher preparation, restoration consulting, revegetation monitoring and worker education for Las Vegas Wash riparian habitats in flood control and water quality project areas.

04/01 to present; Ongoing herbarium study (RSA, SBBG, CAS, and UC Jeps) and research of annual cryptantha taxonomy.

1996 to present; China Lake Naval Weapons Center and Edwards Air Force Base. Ongoing volunteer or funded studies on floristic diversity, plant communities, springs, western Mojave seasonal pool and playa biota. Sensitive plant species surveyed for included *Astragalus jaegerianus, Astragalus mojavensis hemigyrus, A. atratus mensanus, A. lentiginosus micans, A. oophorus, Calochortus panamintensis, C. striatus, Cryptantha clokeyi, Goodmania luteola, Loeflingia squarrosa artemisiarum, Eriastrum pluriflorum, Astragalus lentiginosus var. albifolius, A. preussii laxiflorus, Cymopterus deserticola, Psorothamnus arborescens* var. *arborescens, Chorizanthe spinosa, Eriophyllum mohavense, Mentzelia tridentata, Linanthus arenicola, Sclerocactus polyancistrus, Phacelia nashiana, P. monoensis, P. mustelina, Eriogonum mensicola,* and *Arabis dispar.*

3/05 to 11/05; URS Corp.-Las Vegas. Botanical/cactus surveys for FAA proposed Mesquite Airport on 2600 acre BLM takedown parcel in eastern Clark Co., NV. Sensitive plant species surveyed for included *Astragalus geyeri triquetrus, A. preussii laxiflorus, A. lentiginosus stramineus, Cirsium virginense, Eriogonum viscidulum* and *Pediomelum castoreum.*

5/05 to 10/05; URS Corp.– San Diego. Botanical surveys for proposed Southern California Edison Oak Valley transmission line project in Western Riverside Co (Beaumont-Banning area), California. Sensitive plant species surveyed for included *Berberis nevinii, Dodecahema leptoceras, Eriastrum densifolium* var. *sanctorum,* C*entromadia pungens* and *Calochortus plummerae.*

04/03 to 7/05; Twining/ESR Corp.s Botanical/rare plant surveys for Granite/Desert Aggregate Five Bridges mining expansion project EIR, Bishop. Sensitive plant species surveyed for included *Calochortus excavatus, Spartina gracilis, Chrysothamnus albidus, Oryctes nevadensis* and M*entzelia torreyi.*

5/05; SNWA-Jones and Stokes Association – Botanical survey for proposed water pipeline in Las Vegas, Hidden and Coyote Springs Valleys (I-93 corridor) survey. Sensitive plant species surveyed for included *Astragalus geyeri triquetrus, A. preussii laxiflorus, Penstemon bicolor, Enceliopsis argophylla, Arctomecon californica, Gilia nyensis, Phacelia filiae, Arenaria stenomeres, Anulocaulis leiosolenus,* and *Eriogonum corymbosum nilesii.*

05/05; Phoenix Biological Consulting. Botanical/rare plant survey for proposed Service Rock sand and gravel mine near Garlock, E. Kern Co., CA. Sensitive plant species included *Mentzelia eremophila, Eschsholzia twissellmannii* and *Sclerocactus polyancistrus*.

04/05; Attended Nevada Native Plant Society rare plant workshop in Las Vegas , NV.

04/05; Wildland International. Botanical/desert tortoise survey for proposed SNWA surface water pipeline, NE of Las Vegas.

6/04 to 7/04; URS Corp. Botanical surveys for Mammoth/Bishop Airport expansion, Inyo/Mono Co.s.

5/04; Assistant instructor for Kern Co. Flora workshop sponsored by The Jepson Herbarium.

02/04; Attended two Jepson Herbarium workshops at UC Cal Berkeley; on molecular phylogeny (J. McMurray), and on new species description and publication (B. Ertter).

06/03 to 11/03; Kern Co. Planning Dept. Biota survey of two parcels in Boron, Ca., and one site in Frazier Park, CA.

06/03 to 8/03; Caltrans-Robert Frank Construction, Inc.. Pre-construction survey, monitoring and report for desert tortoise and Mojave ground squirrel per biological opinion.

04/03 to 5/03; URS Corp. Botanical surveys for two sites in western Riverside Co., and one in Escondido, San Diego Co.

04/03; Attended two Jepson Herbarium workshops; on ferns (A. Smith), and on desert lichens/soil crusts (St. Clair).

01/03 to 4/03; Sanford Stone mine. Desert tortoise fence construction monitoring, clearance surveys and worker education in the BLM Rand ACEC, Red Mountain, CA. Sensitive plant species included *Mentzelia eremophila, Eschsholzia twissellmannii* and *Cryptantha clokeyi.*

3/02 to 9/03; URS Corp. Rare plant and blunt-nosed leopard lizard surveys for Caltrans SR119 highway widening project between Bakersfield and Taft, including Elk Hills. Sensitive plant species inclued *Atriplex coronata, A. vallicola, A. tularensis, Eriastrum hooveri, Caulanthus californicus, Delphinium gypsophilum* and *Stylocline citroleum.*

03/03 to 06/03; Jones and Stokes Associates. General vegetation sampling for species richness, cover, density and rare plant surveys for Edwards AFB.

12/02 to 02/03; Ecology & Environment, Inc. Desert tortoise pre-construction clearance surveys and construction monitoring for Kern River Gas Transmission pipeline project along Highway 58, Barstow to Mojave, CA.

10/14 to 10/03; BioResource Consultants. Desert tortoise surveys (USFWS protocol) on 29 Palms Marine Core Base, CA.

9/01 to 2003; Cal St. Dominguez Hills Foundation (Dr. David Morafka). Ongoing pitfall trapping project for Panamint Alligator Lizard (*Elgaria panamintina*) in the northern Mojave Desert. Duties include installing and monitoring traps on NAWS CL (Coso and Argus Mountains) and processing faunal collections for data. Project suspended, but trap maintenance and construction continuing for my trapping sites at NAWS.

6/02 to 9/02; Eve Laeger Consulting. assist with floristic survey of Manter Burn, sampling of various sites, in east Canell Meadow District, USFS S. Sierra NV, CA.

7/02 to 8/02; Baseline vegetation sampling of riparian monitoring transects for Garcia & Assoc./LA DWP project located in the lower Owens River region, CA..

6/02; URS corp. Desert tortoise surveys in Area 62 of Nevada Test Range, for Nellis AFB.

5/02; Impact Sciences Corp. Rare plant survey, GPS site mapping on Tejon Ranch, E. Tehachapi Mtns. Species of concern include *Erodium macrophyllum, Delphinium parryi* ssp. *purpureum, Thermopsis macrophylla, Navarettia setiloba* and *Eriophyllum lanatum howellii.*

3/02 to 4/02; Enviro-Plus Consulting/URS corp. Various pre-construction surveys (plants, tortoise, burrowing owl) and monitoring for Williams High Desert Power Plant Project along highway 395 and Victorville.

2/23/02; attended mosses (Norris) and lichens (Bratt) Jepson Herbarium workshop. Also attended perennial Lupine workshop (Scholars) in July of 2002.

6/01 to 11/01; U.S Navy (Naval Air Weapons Station China Lake (NAWS CL)) Environmetal Project Office task to inventory, map and report on three akaline spring areas in the Coso Mountains

4/20/01 to 11/15/01; Jones and Stokes Associates. BLM GSA contract for rare plant surveys for Clokey's cryptantha (*Cryptantha clokeyi*), and other rare plants including Lane mountain milk-vetch (*Astragalus jaegerianus*), Desert cymopterus (*Cymopterus deserticola*), and Alkali mariposa lily (*Calochortus striatus*), associated with the Ft. Irwin expansion area and BLM West Mojave Plan, BLM Contract task order under Jones and Stokes.

7/01 to 11/4/01; attended Carex (Norris) and Polygonaceae (Reveal) Jepson Herbarium workshops and SERCAL conference.

7/15/01; Rare plant surveys for proposed gold mine (American Reward Mill) in Mazourka Canyon of Inyo county. Sensitive plant species include *Astragalus inyoensis, Arabis dispar, Allium atrorubens* and potentially new taxa of *Eriogonum umbellatum.*

5/25/01; McCormick BiologicalRare plant survey for National Cement plant (McCormick Biological), in S. Kern county. Species of concern include Yellow false lupine (*Thermopsis macrophylla*) and Mt. Pinos larkspur (*Delpinium parry ssp. purpureum*).

4/18/01; rare plant surveys for Three-corner milk-vetch (*Astragalus geyeri var. triquetous*), Bicolored penstemon and other potential rare plants on PG&E powerline project in Meadow Valley area, NV., for URS Corp.

3/01 to 7/6/01; rare and narrow endemic plant search, including Quino Checkerspot habitat assessment, on approx. 3,000 acres of Otay Ranch lands, San Diego Co., for URS Corp.

5/12/01; rare plant survey for proposed powerline near Victorville, San Bernadino Co., for Varanus Biological Services. Target species included Alkali mariposa lily, *Pediomelum castoreum, Cymopterus deserticola, Camissonia boothii ssp. boothii* and other TnE pls.

4/00 to present; botanical assessment of the Lost Valley area of northeast San Diego County, property of Orange Co. council of BSA, ca. 800 acres, for Varanus Biolgical Services, Inc. San Diego, CA. Project associated with EIR requested by San Diego County. ca. 40 hours of work. TnE spp incl *Astragalus oocarpus, Lessingia glandulosa var. tomentosa, Chaenactis parishii, Linanthus orcuttii, Gilia caruifolia, Rupertia rigida, Lilium humboltii* and *Horkelia clevelandii.*

10/00 to 12/00; biological monitor under USFWS permit for fiber line project (Williams), from Yuma, AZ to Riverside, CA. Duties included pre-construction surveys, monitoring construction and reclamation per protocol and BO. Target species included Flat-tailed Horned Lizard (*Phrynosoma M'callii*), Coachella Valley Fringe-toed Lizard (*Uma inornata*), Desert Tortoise, Various endangered milk-vetches (*Astragalus magdalenae var. peirsonii, A. tricarinatus, A. crotalariae* and *A. lentiginosus* var. *coacellae*) and other sensitive plant and animal spp.

6/00 to 12/00; rare plant surveys and meetings with USFWS concerning federally endangered Otay tarplant (*Hemizonia conjugens*) for URS Corp., on the U.S. Generating Company proposed Otay Mesa generating plant project.

10/99 to 12/00; worked on botanical assessment, vegetation performance standard and revegetation plan (SMARA) for proposed aggregate mine in Frazier Park, Kern Co., for Ojai Concrete, Inc. ca. 200 hours of work. Sensitive plant species were *Castilleja plagiotoma* and *Quercus lobata*.

5/99 to 6/01; botanical assessment of parcel in Lockwood Valley, Ventura Co., for Kiva Biological Consulting/French and Associates. TnE species include Mt. Pinos onion (*Allium howellii* var. *clokeyi*) and *Gila leptantha* ssp. *pinetorum.*

7/00; habitat assessment related to FE Quino Checkerspot Butterfly, for URS Woodward-Clyde - San Diego, project related to permit for generating plant on Otay Mesa in San Diego County.

7/00; habitat assessment related to FE Willow Flycatcher, for Varanus Biological Services and USFWS contract, project related study area along San Luis Rey River in San Diego County.

7/00; plant communities assessment for FE California Gnatcatcher study on U.S. Navy Ordnance facility in Fallbrook, in San Diego County, for Varanus Biological Services (Navy contract).

4/00 to 6/00; rare and endangered plant surveys, for Impact Sciences, Inc., in Kern and L.A counties, CA., on areas proposed for development or mitigation by Tejon Ranch Company and Newhall Ranch Land Company. Project incl. searches especially for *Chorizanthe parryi* ssp. *fernandina* (formerly presumed extinct), *Navarettia setiloba, Opuntia basilaris trealeasi, O. b. brachyclada, Escholtzii lemmonii* var. *kernensis*, and other TnE spp., combined areas of 35,000 acres. ca. 160 hours of work.

4/00; rare and endangered plant surveys with San Diego Natural History Museum (Jon P. Rebman - curator), San Diego, CA., with U.S Marine Corps contract for rare and endangered plant surveys project on 7300 acres at Miramar MCAS. ca. 30 hours work. Target spp. incl. *Dudleya variegata, Arctostaphylos glandulosa ssp. crassifolia , Baccharis vanessae, Acanthomintha ilicifolia, Ambrosia pumila, Fremontodendron mexicanum, Chorizanthe orcuttiana, Monardella linoides* var. *viminea,* and *Ferocactus viridescens.*

2/00; rare plant habitat and soils assessment, and produced report for URS Woodward Clyde, San Diego, CA., concerning federally endangered Otay tarplant (*Hemizonia conjugens*) for U.S. Generating Company proposed Otay Mesa generating plant. ca. 100 hours work.

12/99 to 01/00; Assist Southwest Botanical Research, Chino Valley, AZ with Bureau of Reclamation contract for plant community mapping project on 1.4 million acres in central AZ. ca. 120 hrs.

11/99; botanical assessment of San Diego County Sweetwater River mitigation and revegetation area, 26 acres, for Varanus Biolgical Services, Inc. San Diego, CA. ca. 20 hrs.

11/99; plant cover sampling (pin frame) on Saltgrass plots at Owens Dry Lake, Inyo Co., CA. For Agrarian Research Inc. ca. 20 hours.

11/99; surveys (monitoring, video scoping of burrows, transects for USFWS protocol) for desert tortoise for Jones & Stokes Associates at various localities in the Mojave Desert. ca. 50 hours of work.

10/99: Participated in botanical collecting trip to Sierra De Guadalupe region of Baja Sur Mex., in association with Botany Dept. of San Diego Natural History Museum.

4/99 to 10/99: rare plant and general vegetation surveys, provided reports, maps, text data for URS Corp./Varanus Biological Services on Otay Mesa Generating Project and Sloane Canyon Sand and Gravel Projects. ca. 120 hours of work. Target Spp. incl *Quercus dumosa, Cupressus forbessi, Rosa, Ambrosia pumila, A. chenopodifolia, Hemizonia conjugens, Dudleya variegata, Acanthomintha, Pogogyne nudiscula, Eryngium aristulatum* ssp. *parishii, Achnatherum diegensis, Lepechina ganderi, Opuntia parryi* var. *serpentina, Bergerocactus emoryi, Brodiaea* spp., *Muilla clevelandii, Artemisia palmeri, Juglans californica, Astragalus deanei*,, and other TnE plant spp.

7/97 to 9/99: Contributed vegetation section of NAWS China Lake Integrated Natural Resources Plan (INRMP) and most data for vegetation section of NAWS EIS. Last contributions as of September 1999, include GIS mapped data for all sensitive and potentially sensitive plants coverages of sites, populations and potential habitats based on known data, habitat types, and surficial geologic units. GIS data covers 1,000,000+ acres in the region. Combination of volunteer services (through research agreement with NAWS) Tetra Tech. and DSI contracts. ca. 200 hours of work.

5/99 to 9/99: Participated as rare plant expert in four CNPS rare plant advisory committee meetings for Eastern Sierra Rare Plant Working Group, Peninsular Range-East Mojave-Colorado Desert Group, LA Co.-San Bernadino Co.-Ventura Co. Group and San Diego Co.-Riverside Co. Group. Regular contributor to rare plant E-Mail queries from CNDDB/CNPS (D. Tibor, R. Bittman).

4/99 to 9/99: rare plant and general vegetation surveys, provided reports, for Varanus Biological Services on San Diego Co. dept. of Public Works Monte Vista Borrow Pit project, and for MCAS Miramar herpetological trapping arrays site vegetation and physiognomic descriptions. Projects total ca. 80 hours of work. Sensitive spp incl. California Gnatcatcher, Red Diamond Rattlesnake, Orange-throated Whiptail, and Quino Checkerspot host plants (*Plantago, Castilleja, Lasthenia*).

3/97 to 7/99: field surveys (ca. 100 total hours) for NAWS China Lake for federally-listed Lane Mtn Milk-vetch (*Astragalus jaegerianus*), surveys conducted over three spring seasons, incl. 1999, for contracts with Digital Systems International, Tetra Tech and Applied Technology Associates.

5/99: Assisted BLM (West Mojave plan) and USFWS (C. Rutherford-Ventura office) with data, GIS templates, field surveys concerning federally listed and rare plants (*Astragalus jaegerianus* and *Cryptantha clokeyi*) affecting the proposed Ft. Irwin expansion. Volunteer-cooperative land planning project.

2/99: Reviewed and studied specimens of all plant taxa known to occur in San Diego County from San Diego Natural History Museum's synoptic collection in preparation for consulting work in the San Diego area.

6/98 to 8/98: Mojave Ground Squirrel habitat characterization surveys for West Mojave Plan (2 days of vegetation/habitat surveys). Also performed ca. 225 hours of tortoise density transect surveys for West Mojave Plan.

6/98: vegetation surveys, provided report for sites near Needles (City of Needles proposed prison site) for Kiva Biological Consulting. ca. 20 hours work. Target spp. incl. *Echinocereus engelmanni* var. *howei, Coryphantha vivipara* var.s and *Machaeranthera spinulosa* ssp. *goodingii*.

5/98: vegetation and rare plant survey for Western Botanical Services, for High Desert Pipeline project, Kramer Jct to Victorville/Adelanto. TnE target spp. incl. *Chorizanthe spinosa, Eriophyllum mohavense, Cymopterus deserticola, Pediomelum castoreum, Psorothamnus arborescens* var. *arborescens*, ca. 70 hours work

Other Experience:

October. 1997 to April, 1998. Biological Technician. Tetra Tech. Inc., 348 W. Hospitality Lane, San Bernadino, CA, (Dovey Dee, 909-381-1674). Working for Naval Air Weapons Station (NAWS) Land Use Planning Office, China Lake, CA. Continuation of projects and surveys associated with previous two employers (ATA and Boeing). Work includes botanical surveys, data processing, and GIS rendering of NAWS vegetation, maintaining and updating flora database, writing vegetation descriptions for NAWS EIS, NRMP and minor EIRs, and delineating of plant communities and sensitive plant populations. Duties also include maintaining and integrating GPS equipment and survey technology and producing various natural resource layers for GIS system. During this time, completed and delivered on 1.5 year GPS measured-GIS mapping project (as primary mapper, editor and project manager) of all anthropogenic areas of disturbances, roads, test areas and facilities for 1,000,000+ acres of NAWS ranges to 1m accuracy; the only such project of this scale in the U.S. during 1997/98.

October. 1996 to October, 1997. Senior Systems Engineer. Applied Technology Associates, 6710 Bonanza rd, Las Vegas, NV., (Larry Nolen, 702-438-4427). Working for Naval Air Weapons Station (NAWS) Land Use Planning Office (John O'Gara, 760-927-1524)), China Lake, CA. Employed under one year GSA contract. Project to provide development and integration of natural resource data into base-wide ARCinfo GIS database. Duties included acting as liaison to Mojave Ecosystem Project meetings, field surveys of various resource features located on NAWS lands, mapping and GPS field data collection, input, editing, attribution of 2D image data, reduction to GIS import formats, minor GIS analysis and layouts, metadata creation and resource documentation. Accomplishments include ongoing coordination of field effort to survey all major anthropogenic features of the NAWS ranges using differentially corrected GPS, for GIS land use analysis/NAWS EIS and botanical assessments to create documentation of past and present vegetation resources (plant list for the region, plant taxa database, management plan vegetation descriptions, sensitive plant maps and database data).

April to October, 1996. Botanist. Boeing Corp. (Terry Morrison), NAWS Land Use Planning Office (J. O'Gara), China Lake, CA. Providing vegetation mapping and sensitive plant surveys for integration into GIS database. Included mapping plant communities of NAWS lands to 1:100,000 scale topographic template from aerial photos and ground-truthing, floristic surveys using releves and collections, and assistance with other projects including hyper-spectral vegetation imagery demonstration, endangered Mohave tui chub resource surveys, and review of existing related documents.

May to August, 1996. Botanist. Subcontracts to Southwestern Botanical Research, Kiva Biological Consulting, Inyokern, CA. 93527 (Pete Woodman, 619-377-3466), Perennial cover transects (100m line intercept transects and Daubenmire grids) for Arizona BLM Study Plot in

the Hualapi Mountains, Mohave Co. AZ. Vegetation surveys of parcels in Antelope Valley, Frazier Park. Also performed one week (15-23 May) of desert tortoise surveys at DTNRA, Kern Co., for Eremico consulting (D. LaBerteaux, 619-378-3021).

February to May, 1996. Botanist. California Native Plant Society, Sacramento (Dave Tibor, 916-324-3816). Volunteer work doing herbarium research at San Diego Natural History Museum for the California rare and endangered plant inventory. Also submitted CNDDB reports (ongoing) for taxon under review or with previous listings.

September, 1995. Botanist. Mark Bagley-Consulting Biologist (619-873-5326), Bishop, CA. Assisted with alkaline riparian vegetation sampling at Owens Lake, CA. Contract to establish baseline measurements with control sites and future monitoring of sites to determine vegetation impacts from ground water pumping associated with soda ash mining.

April to June, 1995. Botanist. Kiva Biological Consulting. Worked 30 field days on California Bureau of Land Management fire and alien grass study in the western Mojave desert. Contract associated with U.C. Riverside research being conducted by Matt Brooks. Duties involved identifying and sampling annual and herbaceous perennial plant composition along transects with evenly distributed grid samples in open and shrub-shaded sites. Diversity, biomass, and frequency data were collected. Worked at 32 sites in the Ord-Rodman, Superior-Cronese, and Fremont-Kramer resource areas.

August to October, 1994. Field Researcher. Kiva Biological Consulting. Three weeks as field investigator for Arizona BLM Desert Tortoise Permanent Study Plot in the Harquahala Mountains, Maricopa Co. AZ. Performing standard AZ BLM 60-day survey method; including searches for, capture, and processing of tortoises (weights, measurements, health assessment, etc....), photographs and daily field notes. Lab duties included preparation of carcasses and photographs, data transfer to computer formats, analysis and report writing and assistance with associated botanical work. Lab duties included preparation of carcasses and photographs, data transfer to computer formats, analysis and report writing.

February to May, 1994. Field Researcher. Enviro-Plus Consulting, Ridgecrest, CA., (Gilbert Goodlett, 619-371-3592). Principal field researcher and team leader in Nevada Department of Wildlife desert tortoise studies at three sites (Piute Valley, Christmas Tree Pass and Eldorado Valley) in Clark County. Three different survey types were performed at these sites including standard 60-day methods, one square kilometer and random hectare sampling. Duties include assisting proposal writing and personnel recruitment, searches for, capture, and processing of tortoises, field notes, coordination/quality control of three four-person crews.

January to February, 1994. Biological Consultant. Kiva Biological Consulting. Performed preconstruction surveys and environmental monitoring for Southern California Gas pipeline in the Chuckawalla Bench/Chocolate Mountains region (Riverside Co.). Duties included searches for desert tortoise, vegetation sampling plots, desert tree surveys, tree trimming and construction monitoring for compliance.

August to November, 1993. Field Researcher. Kiva Biological Consulting. Principal field researcher for Arizona BLM desert tortoise 60-day population study in the Black Mtns., Mohave Co., AZ. Duties included assisting land survey of site grid, typical tortoise plot data collection and assistance with associated botanical work. Also assisted Jones and Stokes Associates (Stephanie Myers (916) 737-3000), Sacramento, CA., with tortoise surveys (including plant list) in early August at George AFB, ca.

June to July, 1993. Field Research Assistant. Donna J. Howell , Tucson, AZ. Assisted with study of long-nosed bats (*Leptonycteris curasoae*) in association with Luke Air Force Base near Organ Pipe Cactus Monument, Arizona. Duties included hiking to foraging locations and then tracking bats using radio telemetry and chemo-luminescent marking.

March, 1991 to May, 1993. Field Researcher/ Biological Consultant. Primarily for Kiva Biological Consulting and Enviro-Plus Consulting and including Great Basin Exploration and Mining Co., Inc., Reno, NV and The Planning Center, Bakersfield, CA. Desert tortoise field and lab work (similar to most recent tortoise work descriptions), mostly as a primary field investigator on 60-day study plots (Six sites in CA, NV and AZ). Also included presence or absence surveys (five sites), environmental monitoring (areas in CA and NV), assistance with plant surveys and sheep grazing study. Contributed five report sections (written presentations for individual plot sites) to NV and AZ BLM/Game and Fish. Also conducted endangered species preconstruction surveys in the San Jouquin Valley for pipeline construction (target species were San Jouquin kit fox and blunt-nosed leopard lizard), and performed environmental monitoring during exploratory drilling in East Imperial County, CA (impact analysis/written report to the BLM).

April, 1990 to November, 1990. Biological Aide/Forestry Technician. USDA Forest Service (Theresa Ritter-Cannell Meadow District), Sequoia National Forest, CA. Conducted spotted owl (*Strix occidentalis*) surveys per USFS protocol for two timber sale areas. Also worked as Forestry Technician for two months. Duties included use of chainsaw for thinning as part of post-harvest treatment. Also worked as a mapper and driver for US Department of Commerce 1990 census.

February, 1985 to May, 1989. Computer Specialist (334-GS-9). US Navy, NAWS, China Lake, CA. Systems Manager for central computer facility. Specialized in VAX/VMS system software and third-party products. Also worked with Univac, MS-Dos, Mac and Unix systems (Cray +Alliant front-end) which were integrated at main site. Duties included keeping systems operational, maintaining integrity of software and data, consulting and managing a large (500+) user group, creating data transfer routines and programs to bridge vendor/site gaps, customizing and installing new software, managing environmental requirements, site security, hardware configuration, creating hardware and software communication links, and documenting local software procedures. Completed software training to VAX/VMS system programmer level.

September, 1980 to January, 1985. Computer Operator/Data Reduction Technician. Computer Sciences Corporation, NOSC, San Diego and NAWS, China Lake, CA. Operated large-scale computer systems in support of submarine and flight simulators as a contractor to US Navy at various sites. Systems included Univac mainframes, Digital (VAX, etc.) minicomputers and UYK RISC systems.

November, 1979 to August, 1983. Curatorial Aide. San Diego Natural History Museum. Assisted herpetology department with inventory and validation of existing collection, including specimen (Crotalus) preservation and maintenance, analysis of specimen data to confirm validity, preparation of non-valid specimens to skin and bone samples, and assistance with field projects including trap transects and new specimen collection. Volunteer Position.

Education:

24 units, biology major, Mesa College, San Diego.
10 units, computer science major, City College, San Diego

References:

Tom Campbell – NAWS Environmental Project Office, China Lake, CA (760) 939-3222
Jim Rocks – San Diego, CA. (619) 843-6640
Marc Baker – Southwest Botanical Research, Chino Valley, AZ (928) 636-0252

Johanna Kisner

Senior Biologist

Areas of Expertise

Habitat Restoration Project Management-Planning, Implementation, and Monitoring (creeks, wetlands, bioswales, vernal pool, grassland, riparian, coastal sage scrub, chaparral, and oak woodland)
CEQA/NEPA Biological Assessments
Vegetation/Rare Plant surveys
Survey Experience for Special-Status Species Including: Tidewater goby, California Red-legged frog, Least Bell's vireo, Western snowy plover, Golden eagle, Coast horned lizard, burrowing owl, Stephen's kangaroo rat, and Steelhead trout
Bird and General Wildlife Surveys
Stream Monitoring
Wetland Delineation
Construction Compliance and Monitoring
GPS and GIS Mapping

Years of Experience

With URS: 4 Years
With Other Firms: 5 Years

Education

MS/Environmental Science and Management/2001/University of California, Santa Barbara
BS/Environmental Studies/1999/ University of California, Santa Barbara

Overview

Ms. Kisner's combined education and professional background provide a wide range of experience in ecology, biological resource assessment, and habitat restoration. She has over nine years of professional experience including botanical surveys and mapping, habitat assessment, habitat restoration design, implementation, and monitoring, wetland delineation, wildlife surveys (particularly birds, tidewater gobies and California red-legged frogs), construction compliance and monitoring, and GIS mapping. Ms. Kisner has been the project manager for several multi-million dollar habitat restoration projects in Santa Barbara and Ventura Counties. She has managed and coordinated complex biological resource sections for several CEQA/NEPA documents in southern and central California. She has assisted clients with obtaining and complying with regulatory permits for agencies such as U.S. Fish and Wildlife Service, California Department of Fish and Game, Army Corp of Engineers, and Regional Water Quality Control Board.

Project Specific Experience

Project Management Experience

Project manager for several habitat restoration projects including Arroyo Burro Estuary Restoration, Santa Barbara Airport (SBA) Safety Grading Mitigation Restoration Monitoring, SBA Airfield Safety Projects Creek Relocation, SBA Native Plant Services, SBA Tidal Basin Experiment, SBA Area I Restoration, SBA Wetland Restoration Monitoring, Calleguas Creek Restoration, Bohnett Park Creek Restoration Monitoring, Lake Casitas Wetland and Grassland Restoration, and Ellwood Mesa Native Grassland Restoration. She is also project manager for biological monitoring projects including SBA Airfield Safety Projects Pre-Construction Environmental Compliance and several wetland delineation projects.

CEQA/NEPA Biological Assessments/Reports

- Environmental Impact Report (EIR/EIS) Biology Sections-Biology Task Leader for Saticoy UWCD, Ormond Beach Specific Plan, City of Goleta Ekwill-Fowler, Lake Cachuma RMP, and Lake Casitas RMP
- Biological Assessments (BA)- Biology Task Leader for Gaviota Bridge Project and Project Manager for the Santa Barbara Airport Airfield Safety Projects
- Biological Technical Reports- Biology Task Leader for Lake Cachuma and Lake Casitas Resource Management Plan (RMP)
- Natural Environmental Study- Biology Task Leader for Laetitia Winery, City of Goleta Ekwill-Fowler
- Negative Declaration (ND): Biology Task Leader for the Wellhead Project in Colton

- Restoration Monitoring Annual Reports-Calleguas Creek, Santa Barbara Airport Safety Grading, Santa Barbara Wetland Restoration Projects, Casitas Wetland, and Bohnett Park Creek
- Environmental Assessment: Lauro Dam Seismic Retrofit

Habitat Restoration Experience

- In addition to managing several restoration projects, Ms. Kisner has been involved in the monitoring and implementation of several restoration projects in Santa Barbara and Ventura counties, such as Guadalupe Restoration Project, Delhi Sands Restoration Project, Turnpike Bioswale, Rhoads Bioswale, Bohnett Park, Firestone Drainage, Las Vegas Creek, and Foster Park.
- Restoration Coordinator, University of California. Responsible for creating native grassland, vernal marsh, and vernal pool habitat related to environmental mitigation. Supervised the initial grading of the landscape for proper topography. Duties included collecting native seed, planting native species, and removing exotic species. Conducting various flora, fauna, and environmental monitoring for performance criteria. Developing research projects related to vernal pool habitat restoration. Supervise several student interns, volunteers, and assistants.
- Assistant Resource Ecologist, California State Parks. Lead person for ecological restoration, species monitoring, inventory, and exotic species removal projects. Conducted an Ecological Condition Assessment for the Inland Empire District. Managed a program for the removal of Brown-headed cowbirds. Prepared environmental permit applications and state contracts. Managed a native plant nursery, GIS databases, and other natural resource databases.

Botanical Experience

Botanical experience includes work in Santa Barbara, Ventura, and San Luis Obispo Counties, Berkeley, Mojave Desert, and Southern California.

- Prepared several vegetation maps for projects such as Lake Casitas Recreation Area RMP, Lake Cachuma RMP, Santa Barbara Fire Management EIR, Meiners Oaks Trunk Sewer Relocation, Goleta Slough Fish and Game Properties, Mountain View Power Project, Gaviota Creek, Ventura River, Piru Creek, and Lauro Reservoir.
- Conducted point-intercept vegetation transect monitoring for several projects such as Lake Perris Recreation Area Grassland Experiment, UCSB Restoration Projects, Santa Barbara Airport Safety Area Grading Project and Wetland Restoration Monitoring Projects, and Ellwood Grassland Restoration.
- Performed rare plant surveys for Mountain View Power Project, Lauro Reservoir, Lake Cachuma RMP, Lake Casitas RMP, and MWD Colorado Aqueduct HCP (Mojave Desert).
- Performed vegetation transect surveys using the quadrat method for vernal pools and grasslands at UCSB and Ellwood and Guadalupe Restoration Project.

URS

Wildlife Surveys and Monitoring

- Project Manager for the Santa Barbara Airport Airfield Safety Projects Creek Relocation and Arroyo Burro Estuary Restoration Project which involved the successful relocation of 1,502 Tidewater Goby (TWG) and 2,287 TWG, respectively (August 2006). Both projects also included USFWS protocol pre- and post-construction TWG surveys. Authored the Biological Assessment for the Santa Barbara Airport Aviation Facilities Plan as well as the Gaviota Bridge Project EIR which involved TWG. Have over 50 hours of field time performing TWG relocation efforts and protocol surveys.
- Performed USFWS protocol surveys for the California Red-legged Frog (CRLF) for projects in Santa Barbara, San Luis Obispo, and Ventura counties. Conducted protocol surveys along several drainages of Lake Casitas Recreation Area, Ventura River, Tecolotito Creek, Salinas River, and Gaviota Creek. Performed quarterly eye-shine surveys and egg mass surveys at Guadalupe Dunes. Observed numerous adult red-legged frogs during the day and night surveys at Gaviota Creek and at the Guadalupe Dunes. Conducted a habitat assessment for CRLF at Winchester Canyon Creek.
- Performed bird surveys including riparian, waterfowl, raptor, and passerines. Survey sites in Santa Barbara and Ventura counties include Lake Cachuma, Lake Casitas, Santa Barbara Airport, Firestone Drainage, Las Vegas Creek, and UCSB vernal pool sites.
- Assisted in Southwestern willow flycatcher and Least Bell's vireo surveys at Gaviota Creek, Ventura River, Arroyo Simi River, and Lake Perris SRA.
- Performed Burrowing owls surveys at Lake Perris SRA and San Jacinto Wildlife Refuge, and developed a GIS map of all occupied burrows.
- Assisted in surveys to monitor the populations of Stephen's kangaroo rat at Lake Perris SRA.
- Biological monitor for the southwestern pond turtle for two small bridge crossing projects at Chino Hills State Park and Laguna Channel Maintenance Project.
- Conducted Western Snowy Plover surveys at McGrath State Beach during the wintering and breeding seasons.

Wetland Delineations and Functional Assessments

- Performed wetland delineations for the Santa Barbara Ranch Project, Gaviota Bridge Project and Goleta Old Town Improvement Project.
- Assisted in a wetland functional assessment for Newhall Ranch.

Construction Compliance and Monitoring

- Botanical and wildlife monitor for Guadalupe Restoration Project.
- Biological Monitor for Chevron's Wylie Lease Remediation Assessment
- Environmental monitor during entire construction of two bridge creek crossings at Chino Hills State Park and Pueblo Bridge repair project in Santa Barbara.

Professional Societies/Affiliates

Society for Ecological Restoration 2007
California Native Grass Association 2007

Specialized Training

OSHA 40-Hour HAZWOPER 8-hour Refresher April 2007
Loss Prevention System March 2006
CNPS Vegetation Mapping and Classification Workshop August 2005
Basic Wetland Delineation Training, Wetland Training Institute Summer 2004
CEQA/NEPA Workshop April 2001
American Red Cross First Aid (May 3, 2006) and CPR (May 23, 2007)

Chronology

2002 to 2003/University of California Santa Barbara, Santa Barbara, CA, Restoration Coordinator
2001 to 2002/California State Parks, Inland Empire District, Perris, CA, Assistant Resource Ecologist, Range B
1998 to 2001/California State Parks, Channel Coast District, Santa Barbara, CA, Environmental Services Technician

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J. Wayne Vogler

Senior Ecologist

Areas of Expertise

Wetland Delineations
Coastal Dune Ecosystems
Flora/Fauna Surveys
Mapping Services
HAZWOPER Trained

Years of Experience

With URS: 1 Year
With Other Firms: 11 Years

Education

BS/Biological Sciences/1994/
University of California, Irvine

Registration/Certification

1997/U.S. Army Corp of Engineers Wetland Delineation Certification Program
1997/Lead Related Construction Supervisor (#S2112) and Project Monitor (#M2112), California Department of Health Services
1995/Asbestos Certified Site Surveillance Technician, #95-1831, California Department of Occupational Safety and Health

Overview

Mr. Vogler is an ecologist with extensive experience working with natural dune habitats along the Central California coast. Wayne's diverse experience ranges from site investigations of industrial sites to restoring native habitats at a large soil and groundwater remediation site. Wayne's project experience has included working with federal, state, and local agencies to find consensus among several parties, often with conflicting interests, toward the successful completion of the project. Wayne developed and instituted monitoring protocols, developed restoration plans, and monitored one of the largest hydrocarbon remediation projects along the U.S. Western Coast. Wayne has maintained compliance with Health and Safety training requirements, including some specialized training, since 1996; he is fully-versed and indoctrinated in the health and safety culture.

Project Specific Experience

Project Management

- Chevron TDPI Pipeine Assessment - Organize and lead field crews in assessing biological resources at each work location. Species with potential to be encountered include San Joaquin kit fox, giant kangaroo rat, short-nosed kangaroo rat, blunt-nosed leopard lizard, California red-legged frog, Bakersfield cactus, San Joaquin wooly-threads, and several other botanical and wildlife species. Mr. Vogler is working with the client to obtain authorization from USFWS and CDFG for intrusive work activities regarding several listed and special status species. He is familiar with the regulatory environment and agency regulators through his work in the greater San Joaquin Valley. Mr. Vogler has experience conducting protocol surveys for blunt-nosed leopard lizard and performing burrow and den assessments for pocket mice, kangaroo rats, and the San Joaquin kit fox. He is versed and skilled with the operation of borrow scopes.
- Ecological Field Coordinator/Monitoring Task Leader for the Chevron Guadalupe Restoration Project – Develop, coordinate, and conduct biological monitoring and permit compliance of 2,800 acre remediation site. Participate and direct field crews in performance of botanical and wildlife monitoring efforts. Interact with construction personnel and coordinate efforts to avoid disturbance to sensitive species and habitats. Develop and provide senior review of ecological reporting documents. Initiate protocols to ensure compliance with 1,200+ permit conditions. Delineate federal and state jurisdictional wetlands. September 1997 to June 2006.
- Phase I ESAs, Asbestos and Lead Surveys – Managed and trained staff in site assessment and asbestos/lead investigations. Conducted 100+ site assessments in California, Colorado, Hawaii, Illinois, Indiana, Nevada, and New Mexico. Subject properties ranged from multi-acre

vacant, natural lands to large industrial facilities to a pharmaceutical manufacturing plant.

Sensitive Species Survey Experience

California Red-legged Frog (*Rana aurora draytonii*)

- San Luis Obispo and Santa Barbara County – Conducted presence/absence surveys for California red-legged frogs and mapped habitats. 1999 through present.
- Chevron Guadalupe Restoration Project - Permitted to survey, capture, handle, and relocate California red-legged frogs. Includes pit-tagging and radio-tracking of individuals to monitor relocation efforts. Survey efforts for tadpoles, including dip-netting and use of minnow traps. 1999 through present.

Desert Tortoise (*Gopherus agassizii*)

- Mojave Desert – Completion of the Desert Tortoise Council Annual Surveying, Monitoring, and Handling Techniques Workshop. Training included survey techniques for individuals and their sign, assessment of habitat, handling techniques, and burrow construction. 2003.

Blunt-nosed Leopard Lizard (*Gambelia sila*)

- Carrizo Plains – Conducted protocol level surveys in the for a large solar energy project. Survey coverage area of 1.5 square miles. 2007.
- Attended Wildlife Society Blunt-nosed Leopard Lizard Identification Workshop 2007.

Tidewater Goby (*Eucyclogobius newberryi*)

- Santa Barbara Airport, Los Carneros and Tecolotito Creek Realignments – Captured and relocated individuals from the former creek channels. Field work included seining creek channels, dip net capture, identification of listed and common species encountered, and transportation/release. 2006.
- City of Santa Barbara Laguna Channel Tide Gate Repair – Conduct survey for tidewater goby prior to work activities. Post-project sampling of new stream channel to determine tidewater goby re-colonization. Captured and relocated individuals prior to cofferdam placement and de-watering activities; monitored construction activities to avoid impacts to species. Field work included seining tidal lagoon channels, installation of blocking nets, capture and identification of listed and common species encountered, and transportation/release. 2006.

Wetland Delineations and Restorations

- Performed the initial survey and subsequent update surveys to identify and delineate wetlands according to federal definitions at the 2,800-acre Guadalupe Restoration Project. Employed both routine and comprehensive survey methods with findings reviewed by ACOE and NRCS. 1997 and 2004.
- A contributing author and editor to an encompassing wetland restoration and mitigation plan at the Guadalupe Restoration Project. Plan elements included the satisfaction of both federal and state

resource agencies. Designed wetland habitat elements for the enhancement of both California red-legged frogs and La Graciosa thistle. Plan was approved by several federal and state resource agencies with accommodation by the U.S. Army Corp of Engineers describing the Plan as an example for future plans to ascribe toward. 2004 through 2006.

- Guadalupe-Nipomo Dunes – Conduct an identification survey of wetland habitats throughout the entire dunes complex. Developed identification and screening criteria, classification and descriptive identifiers, and survey methodology. Employed aerial photography interpretation for initial target identification. Mapped wetland habitats with sub-meter GPS unit for data to be incorporated into an existing GIS project. 2004 to present.
- Administrative Hearing with the Army Corp of Engineers for the Santa Maria Airport District. Presented to Hearing Officer in support of District's opinion that wetlands unfairly identified by ACOE personnel. Hearing resulted in no action taken by ACOE against District.

General Vegetation Surveys, Wildlife Surveys, and Habitat Assessment

- Conducted regimented surveys and mapping efforts for La Graciosa thistle (*Cirsium loncholepsis*), surf thistle (*Cirsium rhothopilum*), and beach spectacle-pod (*Dithyrea maritima*). Initial survey and mapping of presence. Annual censusing of populations. Monitoring of construction activities to ensure avoidance of disturbance to individuals and habitat. Summer 1998 to present.
- Presence survey. Population mapping, and habitat assessment for Gaviota tarplant (*Deinandra increscens* ssp. *villosa*) for a naturally vegetated 16-acres site at Vandenberg Air Force Base, California. June 2006.
- Habitat Inventory and Ecological Database (HIED) development for the 2,800-acre Guadalupe Restoration Project. Scope included the initial mapping of sensitive flora, sensitive fauna, weed infestation, habitat quality, and several other parameters. Data developed from aerial photograph interpretation, qualitative and quantitative surveys, and specific presence/absence surveys per species. Updated annually. 2002 to present.
- Pre-disturbance assessment and restoration monitoring surveys to determine habitat composition and quality. Developed protocols for photograph documentation efforts. Spring 1998 to present.
- Construction monitoring to ensure compliance with over 1,200 permit conditions. Work with contractors and construction personnel to minimize native habitat disturbance and avoid sensitive and listed flora and fauna. Spring 1998 to present.

Other Reports and Projects

- Worker identification guide to sensitive plants and animals in SLO County to Tosco pipeline workers. 1999.
- Collection of tadpoles and soil in support of an ecological risk analysis at a former gas plant along Santa Barbara coast.

Specialized Training

- Annually/8-Hour HAZWOPER Annual Refresher
- 2006/Loss Prevention System Training, a Behavior Based Safety Program
- 2006/Smith System Advanced Driving Traffic Safety
- 2003/PADI Certified Open Water Diver
- 2001/Stormwater Pollution Prevention on Construction Sites, California State Water Resources Control Board
- 1999/Certified Beer Master, Anheuser-Busch, Inc.
- 1996/40-Hour Hazardous Waste Workers' and 24-Hour First Responder Health and Safety Training

Chronology

- 06/06-present: URS Corporation, Santa Maria, CA
- 10/02-06/06: $(sd)^2$ ecology, Grover Beach, CA
- 06/95-09/02: LFR, Inc., Santa Maria, CA

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STATE OF CALIFORNIA
ENERGY RESOURCES
CONSERVATION AND DEVELOPMENT COMMISSION

In the Matter of:	)	Docket No. 07-AFC-3
	)	
Application for Certification, for the CPV SENTINEL ENERGY PROJECT	)	**ELECTRONIC PROOF OF SERVICE LIST**
	)	
	)	(October 15, 2007]
	)	

☒ Transmission via electronic mail and by depositing one original signed document with FedEx overnight mail delivery service at Costa Mesa, California with delivery fees thereon fully prepaid and addressed to the following:

DOCKET UNIT

CALIFORNIA ENERGY COMMISSION
Attn: DOCKET NO. 07-AFC-3
1516 Ninth Street, MS-4
Sacramento, California 95814-5512
docket@energy.state.ca.us

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DECLARATION OF SERVICE

I, Paul Kihm, declare that on April 11, 2008, I deposited a copy of the attached:

RESPONSES TO DATA REQUESTS 66 – 97

with FedEx overnight mail delivery service at Costa Mesa, California with delivery fees thereon fully prepaid and addressed to the California Energy Commission. I further declare that transmission via electronic mail was consistent with the requirements of California Code of Regulations, title 20, sections 1209, 1209.5, and 1210. All electronic copies were sent to all those identified on the Proof of Service List above.

I declare under penalty of perjury that the foregoing is true and correct. Executed on April 11, 2008, at Costa Mesa, California.

Paul Kihm