

**CALIFORNIA ENERGY COMMISSION**

1516 NINTH STREET  
SACRAMENTO, CA 95814-5512



**DATE:** July 13, 2005

**TO:** Interested Parties

**FROM:** Lance Shaw, Compliance Project Manager

**SUBJECT: WALNUT ENERGY CENTER PROJECT (02-AFC-4C)  
NOTICE OF RECEIPT AND PUBLIC REVIEW OF STAFF ANALYSIS:  
ADDITIONAL WELLS TO SUPPLY BRIDGE AND BACKUP WATER**

On May 24, 2005, the California Energy Commission received a petition from Walnut Energy Center Authority (WECA) to amend the Energy Commission Decision for the Walnut Energy Center (WEC) Project.

WEC is a 250 megawatt natural gas-fired power plant located in the City of Turlock, in Stanislaus County. The power plant is currently under construction, is 74 percent complete, and is scheduled for commercial operation in November 2005.

**DESCRIPTION OF PROPOSED PROJECT CHANGE**

The proposed modifications would allow additional wells, as needed, to be drilled to supply project "bridge water" and backup water. The "bridge period", as currently defined, is that period of time between the commencement of commercial operation of the WEC and either December 31, 2006, or when recycled water from the City of Turlock's wastewater treatment plant is available to supply reclaimed water, whichever occurs first.

On January 19, 2005, the Energy Commission approved WECA's previous petition to use poor quality upper aquifer ground water instead of potable water from the City of Turlock for bridge and backup water. In that petition, WECA requested to drill two wells in the upper aquifer. Each of these two wells was believed to be capable of providing 100 percent of the project's plant water needs. However, the first well drilled on the WEC project site had low productivity and could only meet 50 percent of the WEC's water demands.

Therefore, WECA requests removal of the requirement that only two 100 percent capacity wells be developed, and instead be allowed to develop the number of wells needed, while not exceeding two million gallons per day (mgd) or 1800 acre feet per year (afy) as currently required. WECA also requests to develop wells on the 69-acre parcel on which the WEC project is located, rather than being limited to the 18-acre WEC project site.

WECA also requests that the option be preserved of locating two wells on the South Washington Road site. This is the 1.8-acre location of Turlock Irrigation District's South Washington Road equipment storage area, located immediately adjacent to its Walnut Peaker Plant and substation. A map showing the 1.8 acre South Washington Road site, the 18-acre project site, the 69-acre parcel, and the potential water pipe corridor if the wells are drilled on the South Washington Road site, is a part of this document.

Energy Commission staff is also proposing to modify the definition of the bridge period. The "bridge period", as currently defined, is that period of time between the commencement of commercial operation of the WEC and the earlier of December 31, 2006 or when recycled water from the City of Turlock's wastewater treatment plant is available to supply reclaimed water to WEC. Staff proposes to replace "commencement of commercial operation" with "start of commission operations" to modify when the use of the bridge water supply may commence.

Energy Commission staff reviewed the petition and assessed the impacts of this proposal on environmental quality, public health, and safety. As a result of this review, staff proposes revisions to condition of certification Soils & Water-5. Soils & Water is the only technical area impacted by this petition.

### **SUMMARY OF ENCLOSED STAFF ANALYSIS**

Staff examined the impacts of the proposed modifications to bridge and backup water supply wells and concludes that because the modification will not change the existing maximum water use limits, no impacts to water resources will occur. In addition, staff concludes that the project, if modified, would continue to comply with all laws, ordinances, regulations, and standards (LORS).

### **RECOMMENDATIONS**

It is staff's opinion that with the implementation of the revised condition, the project will remain in compliance with applicable laws, ordinances, regulations, and standards pursuant to Title 20, California Code of Regulations, Section 1769, and no adverse environmental impacts will result from this change. Therefore, Energy Commission staff intends to recommend approval of the petition at the July 27, 2005 Business Meeting of the Energy Commission.

### **PUBLIC REVIEW PROCESS**

The petition to amend the project is available on the Energy Commission's webpage at [www.energy.ca.gov/sitingcases/turlock](http://www.energy.ca.gov/sitingcases/turlock). Staff's analysis is enclosed for your information and review. If you would like to receive a hard copy of the petition and/or the Energy Commission Order if the changes are approved, please complete the enclosed Information Request Form and return it to the address shown. If you have comments on this proposed modification, please submit them to Lance Shaw, Compliance Project Manager at the address on this letterhead, or call (916) 653-1227, or fax to (916) 654-3882, or by e-mail to [lashaw@energy.state.ca.us](mailto:lashaw@energy.state.ca.us) no later than 5:00 p.m. July 26, 2005. Staff's analysis and the Energy Commission Order (if approved), will also be posted on the webpage.

For further information on how to participate in this proceeding, please contact Margret J. Kim, the Energy Commission's Public Adviser, at (916) 654-4489, or toll free in California at (800) 822-6228, or by e-mail to [pao@energy.state.ca.us](mailto:pao@energy.state.ca.us). If you require special

Interested Parties

July 13, 2005

Page 3

accommodations, please contact Lourdes Quiroz at (916) 654-5146. News media inquiries should be directed to Assistant Director, Claudia Chandler, at (916) 654-4989, or by e-mail at [mediaoffice@energy.state.ca.us](mailto:mediaoffice@energy.state.ca.us).

Enclosures:

Map of Potential Well Locations and Pipeline Corridor

Staff Analysis

Information Request Form

Mail List # 7164, which includes potentially affected well owners

**STATE OF CALIFORNIA****CALIFORNIA ENERGY COMMISSION**

Privacy Policy: You will receive only the information requested, and the Energy Commission will make no additional use of your personal information and it will not be provided to any other entity.

*INFORMATION REQUEST FORM*

COMPLETE &amp; MAIL TO:

CALIFORNIA ENERGY COMMISSION  
COMPLIANCE UNIT  
ATTN: Lance Shaw  
1516 NINTH STREET, MS-2000  
SACRAMENTO, CA 95814

OR FAX TO: (916) 654-3882

---

NAME AND/OR TITLE (AS IT IS TO APPEAR ON MAIL LABEL)

---

ORGANIZATION (IF APPLICABLE)

---

STREET ADDRESS OR P.O. BOX

---

CITY

STATE

ZIP CODE

---

PROPOSED AMENDMENT TO THE COMMISSION DECISION FOR THE BRIDGE AND BACKUP WATER SUPPLY (SOILS & WATER-5).

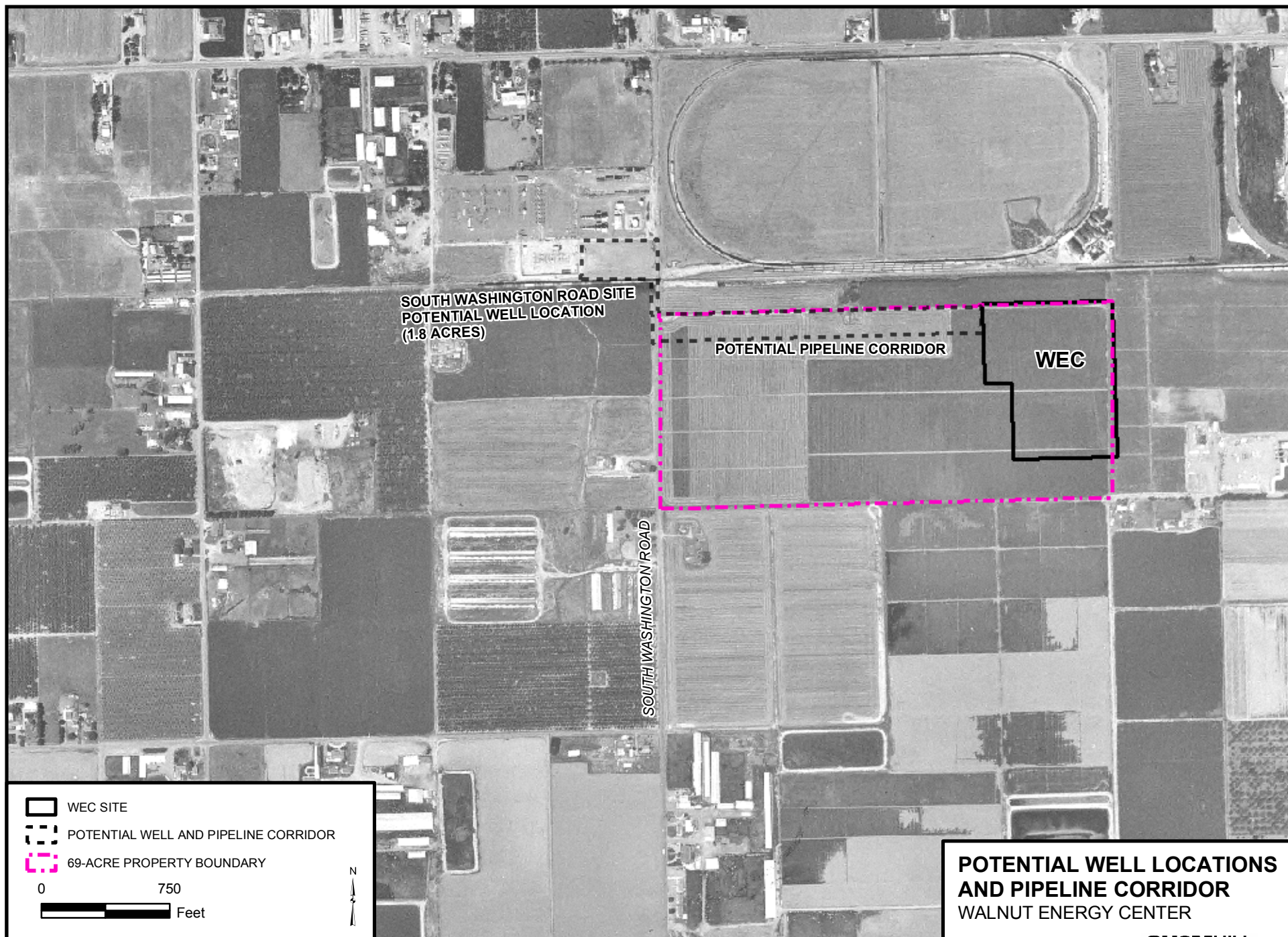
PLEASE CIRCLE THE DOCUMENTS YOU WOULD LIKE TO RECEIVE:

PETITION TO AMEND  
ENERGY COMMISSION ORDER

PROJECT: Walnut Energy Center

DOCKET NO: 02-AFC-4C

MAIL LIST NO: 7164, which includes potentially affected well owners.





**Walnut Energy Center (02-AFC-4C)**  
**STAFF ANALYSIS OF**  
**BRIDGE AND BACKUP WATER SUPPLY**

Prepared by Linda Bond

**July 8, 2005**

**INTRODUCTION**

Turlock Irrigation District Walnut Energy Center (WEC) is a 250-megawatt natural gas fired power plant located in the City of Turlock, in Stanislaus County. The power plant, owned by Walnut Energy Center Authority (WECA), is currently under construction and is 74 percent complete.

WECA submitted a petition to amend the bridge and backup water portion of Condition of Certification Soils & Water-5 on May 24, 2005 (WEC 2005a). The petition seeks to remove the limit on the number of wells that can be constructed for plant water needs and also requests approval to expand the area for the construction of the wells to the entire 69-acre parcel on which the 18-acre WEC project is located, rather than being limited to the 18-acre WEC project site as the condition now states. The petition does not request an increase in any of the water production limits specified in Soils & Water-5, during or after the bridge supply period, nor does it request any changes in the condition regarding the location of wells on the alternative site, on South Washington Road. The South Washington Road site is a 1.8 acre-equipment storage area for Turlock Irrigation District (TID) and is located immediately adjacent to its Walnut Peaker Plant and substation.

Energy Commission staff is also proposing to modify the definition of the bridge period at this time. The "bridge period", as currently defined, is that period of time between the commencement of commercial operation, and either December 31, 2006, or when recycled water from the City of Turlock's wastewater treatment plant is available to supply reclaimed water, whichever occurs first. Staff proposes to replace "commencement of commercial operation" with "start of commission operations" to modify when the use of the bridge water supply may commence.

**LAWS, ORDINANCES, REGULATIONS, AND STANDARDS**

Staff has reviewed the Laws, Ordinances, Regulations, and Standards (LORS) referenced in the Final Staff Assessment (August 2003), the Commission Decision (February 2004), and the Order Approving a Petition to Modify Bridge and Construction Water Supply (January 2005), that are applicable to this proposed amendment. Staff specifically reviewed the well installation regulations applicable to the modifications proposed in this petition.

TID is the sole well-permitting authority for all construction within the city limits. The WEC project is located within the incorporated limits of the City of Turlock. Under most circumstances, the city no longer allows the construction of wells within the city limits

because of potential interference with the city's water supply wells. However, the city agreed to evaluate TID's request to install wells for the WEC bridge and backup supply, which were proposed in the previous amendment (January 2005). The city wells draw from the lower aquifer, which is located beneath the Corcoran Clay layer. This layer acts as an aquitard (a layer that retards the exchange of water between the upper and lower aquifer). The city engineers determined that TID's well logs and well construction plans demonstrated that the WEC wells would draw exclusively from the upper aquifer, above the Corcoran Clay, and, therefore, would not interfere with the operation of the city wells. On the basis of this review, the City of Turlock approved the installation of the WEC wells under the condition that the wells would not perforate the Corcoran Clay (Pitcock 2005).

For the current petition, the City of Turlock confirmed that no additional approval would be required for WEC to install more than 2 wells within the 69-acre parcel, provided that the wells did not perforate the Corcoran Clay (Pitcock 2005). Staff has determined that there are no additional LORS applicable to the modifications proposed in this petition. Based upon this review, staff concludes the project will comply with all applicable LORS.

## **PROJECT HISTORY**

The Energy Commission approved the WEC project February 18, 2004. Condition of Certification Soils & Water-5 was amended on January 19, 2005 (CEC 2005), to replace potable water from the City of Turlock for bridge and backup water supply with water from two new upper aquifer wells to be drilled either on the 18-acre project site, or, on the South Washington Road site. One well was to provide 100 percent of the project's plant water needs and the second well, at the same drilling location, was to provide the backup supply. Plant operational water demand of approximately 1,800 acre-feet/year (afy) or 2 million gallons per day (mgd) did not change with the Commission Order amending the project on January 19, 2005, nor would it change as a result of this amendment. Total backup to the recycled water supply, in the event of a short-term disruption in service, did not change with the Commission Order amending the project on January 19, 2005, nor will it change from the limit of 51 afy in this amendment. The wells proposed to be drilled in this petition would still be drilled in the upper aquifer.

## **PROJECT SETTING AND DESCRIPTION**

WEC's 18-acre project site is located on a 69-acre parcel. This parcel was previously used for agricultural purposes and required approximately 54 afy of water for irrigation. There are also numerous irrigation and private wells operating in the vicinity of WEC that serve agricultural and industrial operations, as well as residences.

## **SCOPE OF ANALYSIS**

The petition (WEC 2005a) and the supplement (WEC 2005b) request two changes in Condition Soils & Water-5 for the bridge and backup water supply wells permitted at the project site in January 2005. Specifically, the petition requests a change in the number

and location of the project site wells. This analysis is limited to the potential effects to water resources associated with the changes described in the petition.

Soils & Water-5 condition (CEC 2005) currently permits the project owner to construct only two 100 percent capacity wells on the WEC project site. WECA has determined from the analysis of test results from drilling its first well on the 18-acre project site that the well can only produce 50 percent of the project's water requirement because the aquifer yield is lower than anticipated. Staff confirms that it is not unusual for aquifer productivity to be variable. The project needs enough wells to provide 100 percent of the project's water requirement, plus one additional well with sufficient capacity to serve as backup to any of the primary production wells. Therefore, WECA will need to drill a total of three or more wells on the WEC project parcel site to meet the project's water requirement during the bridge period.

The revised Soils & Water-5 condition (CEC 2005) also specified that the location of the wells would be restricted to the 18-acre WEC project site, which is located on a 69-acre parcel owned by the project. However, the operation of multiple production wells necessitates a larger well field to avoid drawdown interference between the wells. Therefore, WECA requests in this amendment to expand the original area designated well construction from the 18-acre project site to the 69-acre parcel.

### **ASSESSMENT OF IMPACTS AND DISCUSSION OF MITIGATION**

The change in the number and location of wells would cause a shift in the location of the cone of depression caused by project pumping at the WEC site. The 69-acre WEC parcel encompasses the 18-acre WEC plant site and extends to the west towards the South Washington Road site; therefore, the cone of depression could shift to the west and/or south and impacts would probably be more similar to the impacts previously calculated for the South Washington site. The primary impact that would be caused by this amendment would be small variations in the magnitude of well interference to nearby existing wells that WECA previously calculated for the proposed WEC project site in their 2004 petition to amend the bridge water supply (WEC 2004).

The bridge supply is a short-term supply that will be replaced with recycled water once it is available from the City of Turlock's wastewater treatment plant. Even though the bridge water supply is only expected to be needed for approximately 2 years, groundwater extraction in the area of the project has the potential to impact many nearby private wells. WECA provided a modeling analysis of the potential impact as part of its 2004 petition. The model evaluated well interference caused by WEC's 2 mgd demand for a continuous 5 year period. WECA identified 78 private irrigation wells and 602 private domestic wells, located within approximately a 3-mile radius of the two proposed alternative well sites. Depending on the locations of the proposed wells, the developer found that the water levels in as many as 41 wells will be lowered more than 3 feet (WEC 2004). Staff concurred with the results of WECA's modeling and determined that it presented the maximum impact that would be expected.

As part of this amendment, WECA submitted a recalculation of the maximum potential increase in well interference that could occur to wells located within a 1.5 mile radius of the 69-acre parcel (WEC 2005a, WEC 2005b). The change in impact to wells beyond



this radius would be insignificant. Only 42 of the 78 private irrigation wells and 602 private domestic wells are located within a 1.5 mile radius of the WEC parcel site. Using the same groundwater modeling program and the same aquifer parameters that were used in the previous analysis, WECA calculated the impact for the worst-case project pumping location for each of these 42 existing wells. Based on the information and analysis presented in the amendment and supporting documents, staff was able to verify the data, the method of analysis used by the developer and their results. The results of WECA's 2005 modeling are as follows.

Drawdown specific to individual wells would vary, depending on the actual location of the project wells. WECA worst-case analysis indicates that 36 of the 42 wells within a 1.5 radius of the project site could experience a drawdown of 3 to 7.3 feet within the 5-year simulation period. The overall magnitude of maximum potential drawdown to existing wells would exceed the range of impact previously calculated for the wells located on the 18-acre project site, but would not exceed the magnitude of potential drawdown previously calculated if wells were constructed at the alternative South Washington Road site (WEC 2004).

As discussed in the assessment of the previous petition, although this magnitude of well interference does represent a significant adverse impact, groundwater recharge caused by TID irrigation activities effectively mitigates the well interference that would be caused by bridge supply and backup pumping. TID has provided irrigation deliveries to the region that has increased groundwater levels over time by at least 10 feet (Bond 2004). Therefore, the changes requested in the current petition would not cause well interference impacts to exceed the increase in water levels provided by TID's irrigation activities. Based on staff's assessment of WECA analysis, TID irrigation activities would mitigate the proposed bridge and backup supply pumping for the duration specified in Soils & Water-5.

## **CONCLUSIONS AND RECOMMENDATIONS**

Staff confirms that aquifer yields encountered at the WEC site is new information and represents a substantial change in circumstances which warrants an amendment petition. Given the aquifer conditions encountered in the first well drilled, it is reasonable to assume that well capacities on the 18-acre project site will be lower than previously expected, which changes the assumptions regarding both the number of wells required to meet the project water demand and the size of the area required for efficient well operation. Staff also concludes that the requested modifications are required to provide a sufficient bridge and backup water supply for the project. This constitutes a benefit to WECA.

As defined in Soils & Water-5, the proposed use of groundwater for the bridge supply will be temporary and will be replaced with recycled water as soon as the City of Turlock can deliver the supply. Given TID's current contribution to groundwater levels and the specified term of the bridge and backup water supply pumping, staff finds that no additional mitigation is required.

Staff finds that the requested change to the number and location of the bridge and backup water supply wells specified in Soils & Water-5 will not result in a significant unmitigated adverse direct or cumulative impact to the environment or the public. In addition, staff recommends clarifying the definition of the bridge period at this time, replacing “commencement of commercial operation” with “start of commissioning operations” in Condition of Certification Soils & Water-5, because water is also needed during the commissioning phase and not just at the time of commercial operation.

Staff finds that the project will remain in compliance with all LORS.

## **PROPOSED REVISIONS TO CONDITIONS OF CERTIFICATION**

(Deleted text is in ~~strikethrough~~, new text is **bold double-underlined**):

Staff recommends the following changes to the Condition of Certification Soils & Water-5:

**SOILS & WATER-5:** The project's water use shall be limited as described below. For purposes of this condition, the bridge period is defined as that period of time between the ~~commencement of commercial operation~~ **start of commissioning operations** of the WEC and the earlier of December 31, 2006 or when recycled water from the City of Turlock's wastewater treatment plant (WWTP) is available to the WEC.

Water for construction purposes shall consist of groundwater provided from the existing TID well at the Walnut substation. Potable water may also be used for construction for the purpose of hydrostatic testing and flushing of equipment, pipes and tanks; provided however, the project owner shall minimize the use of potable water for this purpose to the maximum extent feasible.

During the bridge period, water used for cooling and steam cycle make-up shall consist of poor quality groundwater from the upper aquifer supplied from ~~either~~ **either one of two or more** groundwater wells located on ~~either the~~ **69-acre parcel that includes the 18-acre** WEC project site **(the “69-acre Acre Parcel”)** or the **two 100 percent wells located on the** TID equipment storage area on South Washington Road (the “South Washington” site). ~~Only one of the two groundwater wells may be operated at any time (with the other well serving as a 100 percent redundant backup).~~ **Total combined Ggroundwater** production from **all of the wells on both the 69 Acre Parcel and the South Washington site** shall not exceed two million gallons per day or 1,800 afy.

Water for operational and landscaping purposes used after the bridge period shall consist of recycled water from the City of Turlock WWTP and shall not exceed 1,800 afy. Water for domestic needs after the bridge period shall consist of potable water provided by the City of

Turlock and shall not exceed 3 afy. Groundwater from the wells to be located either on the ~~WEC project site~~ **69-Acre Parcel** or the South Washington site may also be used for back-up to the recycled water supply in the event of a short-term disruption in service and shall not exceed 51 afy. Groundwater from the wells to be located either on the ~~WEC project site~~ **69-Acre Parcel** or the South Washington site may also be used in the event that recycled water is not available to the project subject to the provisions of **SOILS&WATER-6**. Alternative water use shall be calculated using a 5-year rolling average.

**Verification:** The project owner shall notify the Commission no later than May 31, 2006, and in monthly compliance reports thereafter, as to the status of recycled water production by the City of Turlock's WWTP until the WEC is using tertiary treated, recycled water for its non-potable operational and landscaping requirements. This notice shall include information on the issues related to recycled water production, DHS approval for recycled water service and the expected availability of recycled water supplies to WEC. After recycled water service is provided to WEC, the project owner shall report water use to the Commission as required by **SOILS&WATER-7**. Annual average water use shall be calculated using a 5-year rolling average of actual water use starting with the first year of operation. In the event of an interruption or reduction in recycled water service that requires the use of groundwater from the wells to be located ~~either on the WEC project site~~ **69-Acre Parcel** or the South Washington site, the project owner shall notify the CPM, in writing, within 24 hours.

## **References**

Bond, Linda D. 2004. Review of Turlock Irrigation Districts Petition: Walnut Energy Center Amendment No. 2 Alternative "Bridge" Water Supply. Memorandum to California Energy Commission Staff, December 3, 2004. 7 pp.

CEC (California Energy Commission). 2005. Order Approving a Petition to Modify Bridge and Construction Water Supply, Order No. 05-0119-02, Docket No. 02-AFC-4C, January 19, 2005.

Pitcock, M. 2005. Record of Conversation, City of Turlock and California Energy Commission: Linda D. Bond, July 7, 2005, Subject: City Well Permitting Requirements for Additional WEC Bridge and Backup Supply Wells.

WEC (Walnut Energy Center). 2004. Letter from John L. Carrier, CH2MHill, representing Walnut Energy Center Authority, to Lance Shaw of the California Energy Commission. Subject: Amendment 2 – Petition to Amend Project Bridge Water Supply (02-AFC-4C). September 3, 2004.

WEC (Walnut Energy Center). 2005a. Letter from Jeffery D. Harris of Ellison, Schneider & Harris L.L.P, representing Walnut Energy Center Authority, to Lance Shaw

of the California Energy Commission. Subject: Petition for Amendment: Walnut Energy Center Authority, the Walnut Energy Center – Condition of Certification Soil & Water-5. May 24, 2005.

WEC (Walnut Energy Center). 2005b. Letter from Jeffery D. Harris of Ellison, Schneider & Harris L.L.P., representing Walnut Energy Center Authority, to Lance Shaw of the California Energy Commission. Subject: Amendment to Soil & Water-5: Walnut Energy Center Authority, Walnut Energy Center, Submittal of Additional Information. May 31, 2005.