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May 17, 2012

Ms. Christine Stora
Compliance Unit
Siting, Transmission and Envrionmental Protection (STEP) Division
California Energy Commission
1516 9th Street (MS-2000)
Sacramento CA 95814

Subject: **WALNUT ENERGY CENTER (02-AFC-4C)**
DATA RESPONSES

Dear Ms. Stora,

On May 2, 2012, the Staff of the California Energy Commission submitted Data Requests 11 through 17 for the Walnut Energy Center (WEC) ammendment dated January 21, 2011. The Walnut Energy Center Authority (WECA), the project owner, hereby submits the attached Data Responses to requests 11 througth 17.

If you have any questions, please contact me at (209) 883-3451. Thank you.

Sincerely,

George A. Davies IV
Combustion Turbine Department Manager
Turlock Irrigation District

Enclosure

cc: Jeff Harris, Ellison Schneider & Harris
Susan Strachan, Strachan Consulting
Brian LaFollette, Turlock Irrigation District
WECA files

DATA RESPONSES OF WALNUT ENERGY CENTER AUTHORITY (WECA)[1]

DATA REQUESTS

11. Please explain the meaning of Note 2: "This data is calculated from real time devices. The data is not Metered Data nor is it Quality Assured Data."

Metered data vs. non Metered data
As discussed below, the "Note" was simply intended to identify the source of the data presented as being "calculated" data, not physical meter readings.

The "Metered Data" supplied with WECA's Annual Compliance Reports (ACRs) is manually recorded by plant personnel by reading the numeric display of the "Badger" brand water meters for recycled water and groundwater once per month. This Metered Data reading is performed near midnight on the last calendar day of each month and provides the month ending value for total water consumption for the previous month and the month beginning value for the upcoming month for each water source. Such measuring devices are sometimes referred to as "totalizers" in that they provide a total volume over the period of recordation, without any data as to time of use or flow volumes during the recordation period. This meter reading process satisfies the requirements of the Conditions of Certification. This monthly meter read process is also the most accurate method for quantifying total water consumption throughout the month and, not surprisingly, is industry standard, used by countless municipal water agencies across the country.

The "real time devices" referred to in the Note are the "pulse" systems, described in Data Request 12 below. These pulse readings provide the basis for the calculations.

The note is intended to clarify that the information presented is calculated and not based on monthly Metered Data readings. Because the information is obtained from calculations based on meter pulses converted to analog that is then sampled by the plant Distributed Control System (DCS), it is not "Quality Assured Data," i.e., data whose quality is assured by the guarantee of a meter manufacturer.

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[1] Staff stated that these responses were due within 20 days. This is incorrect. To begin, Applicant questions the applicability of Section 1716 to compliance matters as a general proposition. Nevertheless, even assuming applicability in this context, Section 1716 unambiguously provides for thirty days for a response, absent Applicant's consent to a shortened period: "* * * Absent such an objection, the party shall provide the information requested within 30 days of the date that the request is made. The dates specified in this section may be changed by mutual agreement of the parties or by committee order." (20 CCR 1716(f).)

12. Please explain what the implications of this note are for the interpretation of the data provided in the table.

The calculated Daily and Hourly data provided to Staff is the "derived from a pulse" output produced by the meter, which are "Badger" company meters. The Badger meters as originally installed, consistent with the Commission's final decision of the WEC project, could only be read directly from the physical, numeric display on the meters and were read once per month, as required by the Conditions of Certification.

In June 2010, WECA staff retrofitted the Badger water meters with the "Badger Recordall" analog output module. This additional system has a magnetic "pulse" output that is converted at the meter into an analog signal via the "Badger Recordall" electronic module. This analog signal is then transmitted to the plant's DCS in "real time" where it is monitored and recorded. The Badger water meter was not originally provided with this output feature and thus had to be retrofitted to provide this magnetic pulse/analog/digital data.

Without this retrofit pulse system, the WECA staff would not have the calculated hourly data requested by CEC Staff, but would only have the previously mentioned month-end physical meter readings. While WECA has confidence in the aggregate data from "real time devices" provided to CEC Staff, the Note was simply intended to identify the source of the data presented. The Monthly Meter reads or "Metered Data" remain the most accurate, most reliable means of measuring and reporting water consumption. The method also meets the requirements of the Conditions of Certification.

While WECA uses the electronic pulse signal to monitor the flow rate of the Badger meters, it must be understood the analog output data is transmitted to the plant's DCS where it is processed into a digital value. This process using the retrofitted metering system has limitations that can result in or from data loss, averaging errors, communication lapses, scaling issues, and timing errors.

WECA believes that the only on-going appropriate water flow information for compliance purposes can be obtained from the monthly reads of the Badger numeric display. These monthly reads are provided to CEC Staff via the Annual Compliance Report in accordance with the Conditions of Certification. However while we have noticed inconsistencies in some of the hourly data provided by the retrofitted real time devices, most likely due to the limitations discussed above, we believe the hourly data provided to CEC Staff for the 5-months selected is both the best available data for the Staff's request and a reasonable representation of the water usage.

The following table 12.1 compares the sum of the hourly data to the monthly values reported in the ACR. Note that the time of day of the final monthly reading can account for some slight differences, but in general the "real time" calculated data is lower than the monthly meter reads.

Table 12.1 Comparison of Hourly Data and Monthly Data

Month/ Year	MWH	Σ Hourly Gallons	GAL/MWH (Calculated hourly data)	Monthly ACR Gallons[2]	GAL/MWH (ACR Reported monthly data)	% diff[3] Gallons	% GW of total[4]
Jun–2010	**33,233**	**9,659,562**	**290.7**	**11,135,875**	**335.1**	**13.3%**	**34.0%**
Nov-2010	**71,169**	**16,283,160**	**228.8**	**17,233,000**	**242.1**	**5.5%**	**4.0%**
Jan-2011	**110,275**	**25,038,162**	**227.1**	**25,523,000**	**231.4**	**1.9%**	**81.7%**
Feb-2011	**104,050**	**25,544,446**	**235.9**	**25,705,000**	**247.0**	**4.5%**	**25.6%**
Mar-2011	**36,492**	**8,705,100**	**238.5**	**9,199,000**	**252.1**	**5.4%**	**0.0%**

13. Please explain why there are periods of water pumping when there is no power generation.

First, and foremost, it is important to recognize that regardless of whether the generating facility is operating or not when water is being delivered from the City's WWTP or the onsite well system, there is only one place for the water to go, regardless of source: the WEC tank. Second, there is only one place for the water to go once it enters the WEC tank: the WEC cooling system.

This is the path of every drop of water delivered from the City of Turlock's WWTP and every drop of water pumped by the approved WEC well system: into the tank and then into the WEC cooling system.

Water enters the WEC cooling system, and there is no other outlet or discharge point for water once it has reached the WEC tank, be it recycled water or groundwater. Similarly, once the water has reached the end of its useful term for cooling, dictated primarily by cycles of concentration, the water similarly has no further discharge or outlet. The water that is not evaporated away and is no longer used in the cooling system ends up in the WEC zero liquid discharge (ZLD) system.

There are very few periods where water is pumped with no generation within the hour (~0.8% of the hours were such) and nearly all of these hours were adjacent to and associated with hours of generation, meaning the pumping is associated with water needs for startup, operation, or shutdown of the generating units. WECA is pleased to respond to questions about those rare times when groundwater may have been pumped when the powerplant was not starting up, generating, or shutting down. Those answers are below. Yet in reviewing these answers, it is fundamental to keep in mind that the water, regardless of when it is delivered from the City WWTP or the onsite wells, can only enter the WEC tanks, before flowing to the cooling system and ultimately, to the WEC ZLD.

[2] June 2010 Gallons are corrected ACR gallons as of 5-11-12, reduced from 14,981,000 gallons.
[3] Gallons percent difference calculated as follows: (monthly-hourly)/monthly
[4] Based on the hourly data.

As discussed below, routine maintenance of the Cooling Tower basin and Recycled Water storage tank necessitates pumping to "refill" the cooling system after the maintenance period has ended. Further, routine "preventative maintenance" on each of the three on-site groundwater well pumps requires pumping as part of the testing of those facilities.

WECA Staff have analyzed the data transmitted on April 16 and found only one occurrence where Recycled water was pumped without generation and where generation did not occur within a short time frame prior to or following the water pumping. This involved only Recycled water and occurred on November 16th / 17th of 2010. (Total Recycled water used during this event = 417,444 Gal, or 1.28 Acre Feet). The event occurred during restoration of WEC following a scheduled plant maintenance outage. Upon completion of the maintenance outage, the Cooling Tower basin and Recycled Water storage tank (which had been drawn down purposely by shutting off the source and consuming the water prior to the start of the outage to prepare the Cooling Tower for inspection) were refilled with Recycled water so that the Cooling Tower could be returned to service and WEC could be declared "Available". Any delay in refilling the Cooling Tower basin and Recycled Water storage tank would have been a delay in declaring WEC "Available". This event represents 0.5% of the water used over the 5 months selected by CEC staff.

Many months WECA performs preventive maintenance on each of the three on-site groundwater well pumps. The purpose of the preventive maintenance task is to maintain the development of the well, verify the gravel pack elevation in the inspection tubes, collect a sample and evaluate for sand production from the well, send sample to the Lab for analysis, lubricate the pump/motor, verify controls, and evaluate the overall operation of the well pump/motor. This preventive maintenance task is generated by WEC's Computerized Maintenance Management System and could occur at any time whether the plant is on-line or off-line. This preventive maintenance task frequency has recently been changed to occur once per quarter in the effort to reduce groundwater usage.[5]

WECA has analyzed the 5-months of data selected by CEC Staff and found only two occurrences where Groundwater was pumped without generation and where generation did not occur with a short time frame prior to or following the water pumping. The first occurrence was on February 4th 2011 for hour 1100 and 1200. The plant records show that the well flow began at 11:45 am and ended at 12:07 (22 minutes). Recorded flow rate averaged over the two hour period was 188.5 gpm. Total calculated flow was approximately 22,620 Gal, or 0.07 Acre Feet. The second occurrence was on February 12th 2011 for hour 1700. The plant records show that the well flow began at 17:33 and ended at 17:37 (4 minutes). Recorded flow rate averaged over the hour was 27.4 gpm. Total calculated flow was approximately 1,644 Gal, or 0.01 Acre Feet. Together these two groundwater events represent 0.029% of the water used by the plant over the 5 months selected by CEC Staff.

In total, these events are rare, just approximately 0.8% of the hours. Ultimately, regardless of when water is drawn from the WEC well system, it can only enter the WEC tank, before flowing to the cooling system and ultimately, to the WEC ZLD. There are no other uses or places of use.

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[5] This change in frequency is expected to have very little effect on the already insignificant groundwater usage associated with preventive maintenance, however it represents an effort by staff to take reasonable actions to further minimize use.

14. Please provide a correlation between the generated power and the source of the water used to generate that power, show how the calculations were made, and explain any assumptions made to provide the correlation.

WECA does not see, nor does the data support, any significant clear "correlation" between the generated power and the source of the water used. Our approach is to examine the data to determine what mathematical correlation exists and to what degree.

A spreadsheet was created of hourly water data obtained by converting meter pulses from the two water meters (one each recycled and groundwater sources) over the hour to calculate average gpm in the hour. Likewise, the average MW plant generation over each hour is obtained from WEC's data base for the same hours over the 5 months requested by CEC Staff. It is accurate to then multiply the average gal/min by 60 to obtain the gallons for the hour. The average megawatts over an hour by definition correspond to the megawatt-hours (MWH) produced for that hour.

With this data, an hour-to-hour comparison can then be made between each of the two water sources and the corresponding generation. Individual hour correlations are weaker than the correlation over several hours because water storage is involved and there is time lag between when generation occurs and the cooling system needs water and the storage tank is replenished.

To foster the most accurate assessment of the correlation between water use by source and generation output, a methodology was needed to assign the MWHs generated to the water source. The vast majority of the time, the plant was on line using recycled water (30.2% of the hours) or off line using no water (48.7% of the hours). Each hour was categorized in accordance with table 14.1 below.

Table 14.1 – Assignment Scheme for Hourly Correlation of Water to Generation[6]

% occurs	Recycled water (RW) pumped?	Groundwater (GW) pumped?	MWHs generated?	Assignment
30.2	Yes	No	Yes	Assign MWHs to RW
16.0	No	Yes	Yes	Assign MWHs to GW
0.5	Yes	Yes	Yes	Assign MWHs proportionally
3.9	No	No	Yes	Review adjacent hours & assign MWHs accordingly
0.5	Yes	No	No	Include this RW with RW that corresponds to generation
0.3	No	Yes	No	Include this GW with GW that corresponds to generation
48.7	No	No	No	N/A-no gen or pumps

[6] Approximately 93% of the water used by the plant in the two-year time frame selected by the CEC was recycled water. However, Table 14.1 indicates that about 1/3 of the time the plant was running groundwater was in use. This is because the 5 months selected include January and February 2011 which together represent more than one half of all the groundwater used by WEC over the two-year period.

For the 3.9% of hours where generation occurred within the hour and no water was pumped within the hour, a review of the data and the water source used in adjacent hours made assignment of MWHs simple. As shown below in Figure 14.1, no water was pumped but generation occurred in hour 19:00 (7:00 p.m.) on February 27, 2011. Because, as shown below, only recycled water was pumped in the five hours preceding zero pumping in hour 19:00 (hours 14:00-18:00) and because only recycled water was pumped in the seven hours following hour 17:00 (hours 20:00 on February

Figure 14.1 Actual Data Snapshot Illustrating MWH Assignment

TE: This data is calculated from real time devices. The data is not Metered Data nor is it Quality Assured Data.

H	I	J	K
DATE : TIME	RECLAIMED WATER SUPPLY 1-HOUR AVERAGE gpm	WELL WATER SUPPLY 1-HOUR AVERAGE gpm	PLANT GROSS MEGAWATTS 1-HOUR AVERAGE MW
27-Feb-11 14:00	807.6	0	200.8
27-Feb-11 15:00	807.2	0	198.6
27-Feb-11 16:00	806.3	0	192.3
27-Feb-11 17:00	805.8	0	185.7
27-Feb-11 18:00	286	0	186.3
27-Feb-11 19:00	0	0	192.9
27-Feb-11 20:00	687.9	0	198.8
27-Feb-11 21:00	807.7	0	195.5
27-Feb-11 22:00	807.8	0	205.3
27-Feb-11 23:00	807.8	0	193
28-Feb-11 0:00	807.8	0	186.5
28-Feb-11 1:00	807.7	0	196.1
28-Feb-11 2:00	807.4	0	219.5

27, 2012 through hour 2:00 on February 28, 2011), the Megawatt hour generated in hour 19:00 can rightfully be attributed to power generated using recycled water. For the 0.8% of hours when water was pumped and no generation occurred, the water used was still included in the calculation of gallons per MWH by water source.

With adjustments made, the total gallons of water by source, along with the MWHs assigned to each source were used to calculate the gallons per MWH. A summary of the data and explanation of calculation methodology is shown in Table 14.2 below.

Of particular note is that _the gallons of each water source used to make a MWH are nearly the same_ *– Lines F and J below.* The small difference between the two is well within the margin of data accuracy of measuring devices, given the reliance of calculated data, and operational practicalities.

If anything, the analysis indicates slightly less groundwater might be needed per MWH; however, this slight difference is likely due to the limitations in the accuracy of the measuring devices and, in any event, this less-than-significant calculated variance is not indicative of the relative advantages/disadvantages of each water source. If we remove from the calculations the generation that took place within hours where no pumping occurred (the 3.9% of hours set forth in Table 14.1 above), then the percent difference, Line K below in Table 14.2, is approximately 1%: 100*[(GW gal/MWH)-(RW gal/MWH)]/GW gal/MWH) = 1.06 %].

Table 14.2 – Summary of Data Analysis

Qty label	Quantity Description	Value	units	Calculation
		RECYCLED WATER		
A	Recycled Water (sum gpm)	905,613	Σgpm	Sum of hourly gpm
B	Recycled Water (gallons total)	54,336,786	Gal.	B=A*60
C	Generation by RW (same hour assignment)	218,571	MWH	See table 14.1
D	Generation during hours with no pumping	17,733	MWH	See Table 14.1
E	Generation Manually assigned to GW	9,424	MWH	See Table 14.1
F	**Recycled Water/Generation**	**239.50**	**Gal/MWH**	**F=A/(C+D-E)**
		GROUNDWATER		
G	Groundwater (sum gpm)	497,101	Σgpm	Sum of hourly gpm
H	Groundwater (gallons total)	29,826,066	Gal.	H=G*60
I	Generation by GW (same hour assignment)	118,723	MWH	See table 14.1
J	**Groundwater/Generation**	**232.75**	**Gal/MWH**	**J=H/(E+I)**
K	% difference between RW/MWH & GW/MWH	-2.82%		K=(F-J)/J

Further Correlation Analysis

In looking at the correlation between the hourly data for water used and power generated, the data supports WECA's understanding that there is poor correlation *on an hourly basis* because of the nature of the system operations. That is, the plant's cooling system, by design, includes tankage at the front end of the cooling system that allows for slight variance between hours of operation of the powerplant and hours of operation of the pumping systems. Furthermore the two water sources have differing pumping rates: approximately 800gpm for Recycled Water pumps and approximately 1,000 gpm for on-site Groundwater pumps. When the plant has been down for several hours, the data supports that there is almost no water used as expected, and when the plant is running over several hours there is substantial pumping of water to support those operations. Neither the onsite groundwater pumps nor the pumps at the City WWTP "stream" the water in real time to the plant systems. Instead, in all instances, the pumps replenish a storage tank, and the tank serves its important design function for water delivery to the cooling system.

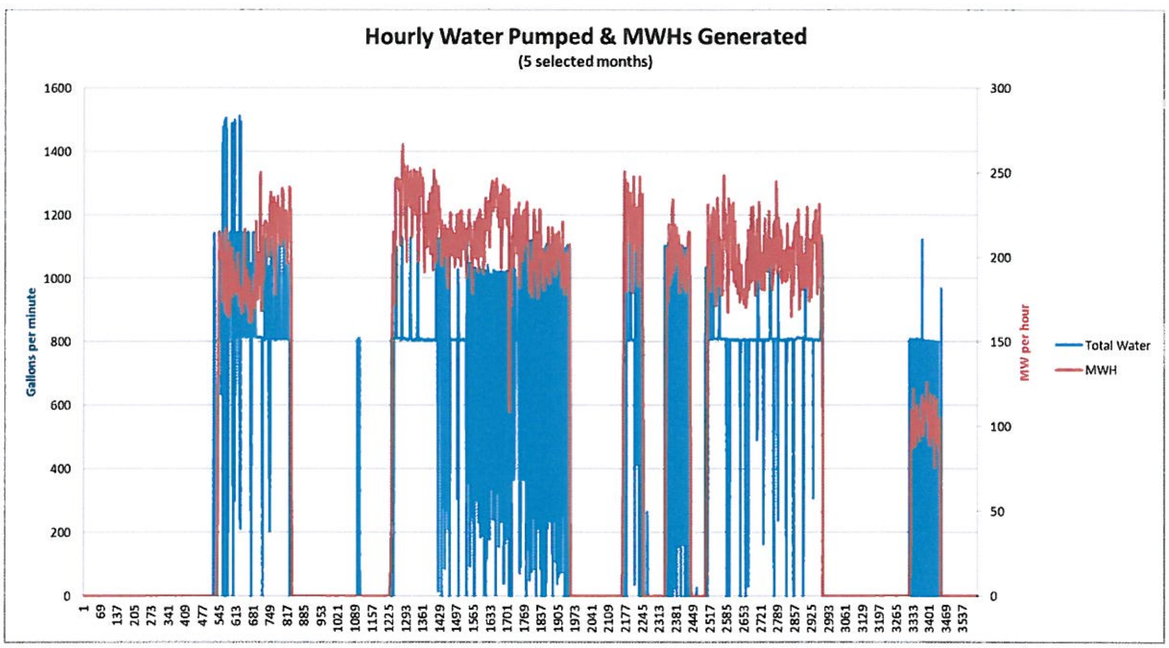
In terms of generation and water needs of the WEC plant, no two hours are identical because no two hours have exactly the same operating profiles and the same weather conditions. Operating profiles will necessarily vary between any two hours because the real time load varies. Each hour is "unique," reflecting unique load and weather conditions.

Significantly, weather conditions also play a crucial role in water usage. The cooling tower's evaporation rate is directly affected by ambient temperatures and relative humidity. To use extreme examples to make the point, the plant's evaporation rate will be much higher at 3:00 p.m. on a dry summer day when the ambient temperature is 105 degrees F versus the evaporation rate at 5:00 a.m. on a foggy winter's morning when the ambient temperature is 50 degrees.

Load levels also affect the amount of cooling needed as well. The closer the plant moves to 100% load, the hotter the power plant's systems and thus the more the need for cooling water.

The following graphs 14.1 and 14.2, showing water use in gallons per minute in relation to megawatt hours generated, illustrate the correlation between load and water usage.

Graph 14.1 – Water and Generation (5 selected months)[7]



To improve assessment of correlation, a subset of the data was created wherein all of the hours where no generation occurred are eliminated, and a 12-hour moving average of the average hourly gallons per minute and average Megawatts per hour was calculated. The Correlation function in Microsoft Excel was then used to calculate a correlation factor based on the following equation:

[7] The 5 months selected by CEC staff are June and November 2010, and January, February, and March 2011.

- The equation for the correlation coefficient is:

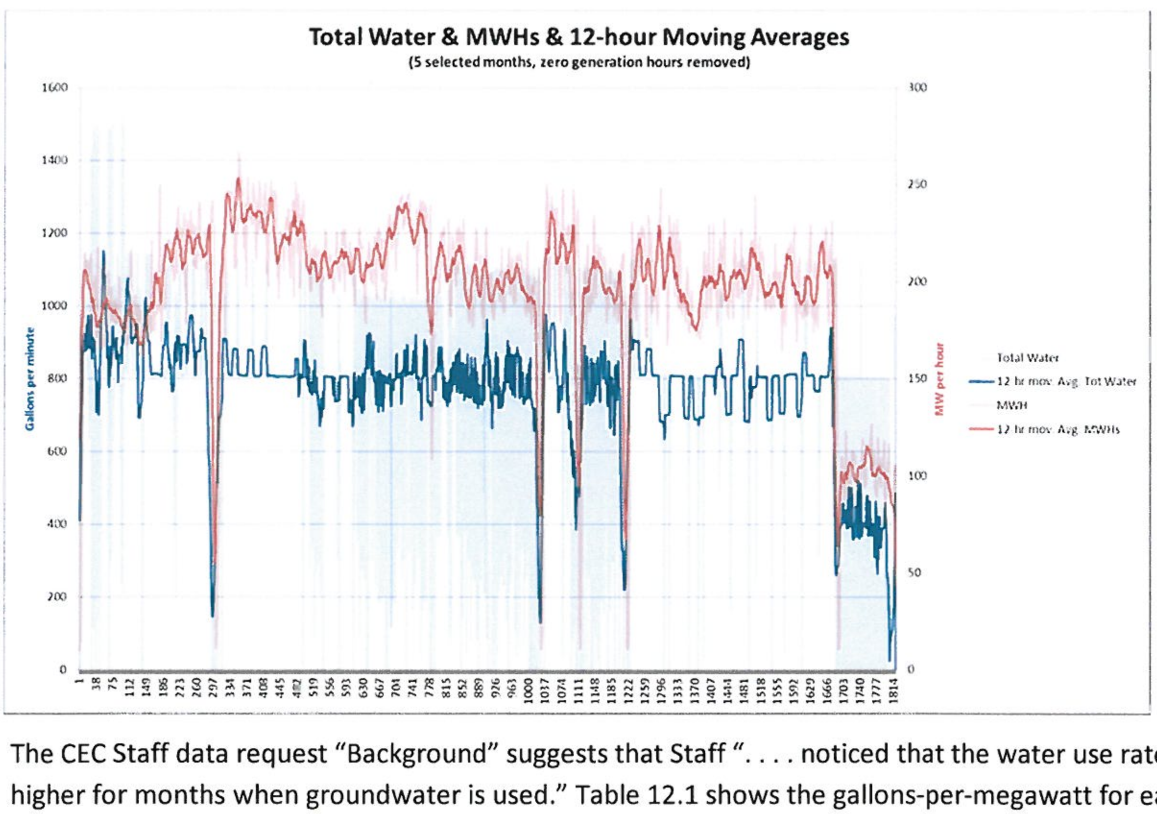
$$Correl(X,Y) = \frac{\sum (x-\bar{x})(y-\bar{y})}{\sqrt{\sum (x-\bar{x})^2 \sum (y-\bar{y})^2}}$$

where x and y are the sample means AVERAGE(array1) and AVERAGE(array2).

The Excel correlation coefficient range extends from +1 indicating a perfect positive linear relationship between the data, and -1 indicating a perfect negative linear relationship. Zero indicates no correlation.

When the actual hourly data (with zero generation hours removed) is used the correlation coefficient is 0.4 as could be expected by examination of the data and knowledge of the system. However, the correlation between the 12-hour moving averages of both the total water pumped and the MWHs generated increases substantially to 0.8. Graph 14.2 below shows this actual hourly data in the background with the 12-hour moving averages of the same data in relief.

Graph 14.2 – Water Versus Generation (5 selected months)



The CEC Staff data request "Background" suggests that Staff ". . . . noticed that the water use rate is higher for months when groundwater is used." Table 12.1 shows the gallons-per-megawatt for each of the 5 months selected by the CEC. We do not find from this data an indication that for months when groundwater is used there is an increase in the water use rate.

In fact, comparing January 2011 (when approximately 82% of the water pumped was groundwater) with November 2010 (when only 4% of the water pumped was groundwater), we see nearly identical rates of water use per MWH (227.1 Gal/MWH for January 2011 vs. 228.8 Gal/MWH for November 2010, a 0.74% difference). In March 2011 when no groundwater was used, the Gallons/MWH is higher yet at 238.5 Gal/MWH.

In conclusion, the data does not support, nor does WECA suggest, a good correlation on an hourly basis, but there is an improved correlation on a longer time frame basis between water pumped and generation, given all of the variables affecting evaporation rates and power plant load. There is also good evidence from the data that there is virtually no difference in the amount of water used per MWH of energy generated based on the water source.

15. Please explain the reason why water use rates (gallons per MWh) appear to increase whenever groundwater is used for some or all of the plant needs.

Please see the response to question 14 above. WECA does not agree (nor does the data support) that there is any causal relationship between the source of the water and the rate of consumption per MWH.

In addition, WECA calculations provided to the CEC on April 16th show the comparison between the Groundwater use rate and Recycled water use rate. One methodology shows the Groundwater use rate is higher than Recycled water use rate by approximately 1%. This is within the published accuracy of the Badger water meter as stated on the manufacturer's data sheet of +/- 1.5%, and is within the requirements of American Water Works Association (AWWA) Standard C701-12 for "Class 2" water meters of +/- 1.5%.

A second methodology also provided in the April 16th submittal shows that percent difference between the lower Groundwater and higher Recycled water use rates was approximately 2.82%. WECA asserts that given the accuracy of the data collection methodologies and metering devices that there is no significant difference between the sources.

16. Please explain why the water use rate derived based on monthly totals is generally higher in the months of January and February 2011 compared to other months, although temperatures are usually considerably lower during those months.

Water use rates are not higher in January and February than in other months on a Gallons/MWH basis as Table 12.1 confirms. This Table 12.1 information is the best means for assessing water usage.

By marked contrast the ACR standard reporting format (see figure 16.1) displays Monthly Average (GPM). The ACR Monthly Average is simply determined by the number of gallons of water used in the month divided by the total minutes in the month:

$$\frac{\text{Gallons Used That Month}}{(60\text{ minutes}) \times (24\text{ hours/day}) \times (\text{total number of days in that month})}$$

The numerator in this equation is variable, based on the total gallons used that month.

In marked contrast, the denominator of this equation is fixed. The total minutes in the month, is calculated without any consideration of whether or how much the plant ran that month. The denominator is the same regardless of the MWH generated or the plant operating hours. Accordingly, the calculation will be higher during those months when more water was used as the numerator in this equation will be greater due to higher usage.

The numbers for January and February 2011 are comparatively high for two main reasons. First, the plant operated in baseload mode, operating the majority of both months. Second – and of greatest significance for this calculation of groundwater use only – the City of Turlock's WWTP experienced high outages of recycled water, meaning the WEC was forced to use its backup groundwater supply. These factors combined to mean that the numerator representing the gallons of groundwater used that month was higher and thus the "average" groundwater usage during these high WWTP outage months was higher. However, groundwater is only one of the two sources of water available to the project.

Figure 16.1 ACR Excerpt

APPENDIX E
SOILS AND WATER-7 WATER MONITORING TABLES

Water Usage at TID WEC
April 1, 2010 through March 31, 2011
Source: Groundwater

	Water Use (Gallons)	Water Use (Acre-feet)	Monthly Average (GPM) Note: Gallons per month divided by total minutes per month.	Monthly Range (GPM)	Monthly Average (Acre-Feet)	Monthly Range (Acre-Feet)	Yearly Average Water Use (Acre-Feet)	Yearly Range Water Use (Acre-Feet)
Apr-10	1,353,000	4.15	31.32	1066	9.09	63.46	90.41	33.12
May-10	689,000	2.11	15.43	1144				
Jun-10	2,435,000	7.47	56.37	1825				
Jul-10	1,402,000	4.30	32.45	1247				
Aug-10	168,000	0.52	3.76	1401				
Sep-10	511,000	1.57	11.83	1418				
Oct-10	520,000	1.60	11.65	1427				
Nov-10	626,000	1.92	14.49	1483				
Dec-10	842,000	2.58	18.86	1367				
Jan-11	20,678,000	63.46	463.22	1433				
Feb-11	6,319,000	19.39	156.72	1545				
Mar-11	0	0.00	0.00	0				
Total	35,543,000	109.08						

Acre-Feet = 325,851 gallons

The ACR report section shown in Figure 16.1 focuses solely on groundwater usage. Note that as shown in Table 12.1 when *all water sources are considered, as well as plant operating hours and generating levels*, January and February (with high groundwater use totals) compare closely with March in gallons of water used per MWH of generation. One cannot properly assess, from the required ACR reporting format, a meaningful water use rate.

17. Please explain the reason for the substantially high water use rate for the month of June 2010.

There are two reasons for the higher water use rate in June 2010. First, the higher hourly water usage rate in the warmer months like June will be higher because the evaporation rate of the Cooling Tower is higher. This is directly attributable to the ambient weather conditions in June: higher heat and lower relative humidity. The remaining four months selected by CEC Staff for this inquiry were all winter months when the evaporation rate would be much lower due to lower ambient temperatures and higher relative humidity. Second, WECA substantially over reported the amount of Recycled water used in June 2010 which will require WECA to submit an amended ACR for the 2010 operating year. As noted above, the Badger Recordall system was installed in June 2010. The over reporting was due to an adjustment error associated with this first month of operations with the new system.