Patricia P. Watt

Consultant, Actuary

1044 Belvedere Lane
San Jose, California 95129-2901

Office: (408) 996-2145
Fax: (408) 446-4907

April 17, 2005

Ms. G

Re: Marriage of Y and S

Dear Ms. G:

I have reviewed the attached spreadsheet from PG&E (Exhibit A) and I see how they reached their results. PG&E is attempting to calculate an average rate of return over the eleven-year period from the date of separation to the date of distribution. They then apply this average rate of return to the components of the ending account balance in order to determine the separate and community property. The results are absurd.

It is not my intention to attack PG&E's method in the general case. The approximation they used is well known within the financial and actuarial community, and ordinarily leads to acceptable results.

The problem is that they did not have any mechanism for a "reality check". PG&E has blindly followed a formula that gives reasonable results in most cases, but not in this case. One artifact of this approximation method, for instance, is that in calculating Mr. Y's return on investment (Line 26 of Exhibit A) they make the assumption that all the contributions and withdrawals occur at the same time, exactly in the middle of the calculation period. Another way of saying that is that they assumed the contributions and withdrawals were available (or unavailable) for investment exactly half of the time. Let us follow the implication of that assumption as it affects their calculations.

At line 18, they show the total participant contributions after separation as $120,866.27. They also show the total withdrawals as $145,859.23. The effect of assuming both of those transactions occurred on a single day in the middle of the period is to yield the net result that there was no separate property, and a withdrawal of $24,992.96 of community property was made. At Exhibit B I have rerun the PG&E spreadsheet (which they graciously provided to Mr. Y and which he has shared with me) using the alternative described above – no separate property contributions and only withdrawal transactions over the period. As you can see, the results are identical. The spreadsheet reports that Ms. S is entitled to 72% of the trust!

There is a bright line test here, which PG&E should have made, which would have warned them that their results were unreasonable. Anytime withdrawals exceed contributions, they should use another method to allocate the separate and community property in an account. Their standard method is unacceptable!

Another consequence of this distortion is to produce clearly impossible figures for the separate property share of the account (see lines 34-38 of Exhibit A). On a withdrawal of $127,721.14 taken in the fourth quarter of 1998 and a withdrawal of $16,116.91 taken in the fourth quarter of 1999, PG&E calculates that the loss of earnings because of the withdrawal (line 37 of their spreadsheet) was $651,991.85. The "interest lost" is more than 450% of the amount withdrawn! This astonishing loss occurred in less than three years, from late 1998

© 2005, Patricia P Watt. All rights reserved

until early 2001.[1] That amounts to an annual loss of 65%, and is clearly contradictory to their rate of return calculations.

This case is unusual because of the long period of time involved – eleven years from separation to distribution. The formula PG&E used gives reasonable results for short periods of time. For periods of a few days to a month, the results are virtually identical to an exact calculation. For periods of one or two years, the results are "ok", probably within 5% of an exact calculation. For periods longer than five years, the results need to be checked to see if the approximation introduces distortion. PG&E did not do this checking.

At least one other opportunity to check for the reasonableness of their results was missed by PG&E. When they applied their erroneous result to the ending account balance in Mr. Y's plan, they calculated that the community property exceeded the current balance of the remaining account. Under their calculation, Mr. Y owes his former wife 72% of the account balance. That implies that the community property is 144% of the account balance. That result would attribute 100% of the account balance, plus the withdrawal, plus the earnings imputed to the withdrawal entirely to community property. And this result was attributed to a marriage that lasted only 42% of his career to date - eight years of marriage out of his roughly nineteen years of employment.

In Exhibits D and E to this report, I show graphically how the actual components of the account developed, and how PG&E's approximation shows the account developing. In exhibit D, I trace the starting balance of the community and separate property, and examine how the contributions and earnings change the proportions. It is clear that the withdrawal near the end of the period did not encroach on any community property in the account. There were sufficient assets from separate property contributions and earnings to cover the withdrawal when it was made. In Exhibit E, I show the initial balance of community property growing at the average rate of investment return (21.688% per year) until the "withdrawal" in the middle of the period. As you can clearly see, none of the separate property contributions and earnings is acknowledged in the calculation.

Please let me know if any of this is not clear. Thank you for this opportunity to serve you.

Sincerely,

Patricia P. Watt
Fellow of the Society of Actuaries
Enrolled Actuary

[1] I have actually calculated the returns year-by-year and I obtained the following results:

Year	ROR	Year	ROR	Year	ROR
1990	10.08%	1994	0.71%	1998	9.58%
1991	30.01%	1995	32.40%	1999	35.93%
1992	10.34%	1996	19.32%	2000	-2.15%
1993	9.20%	1997	31.27%		