Q.Please state your name and business address for the record.

A.My name is George E. Fink and my business address is 472 W. Washington St., Boise, Idaho.

Q.By whom are you employed?

A.I am employed by the Idaho Public Utilities Commission as an Engineer.

Q.What is your educational and professional background?

A.I received a B.S. of Environmental Engineering from Montana Tech in Butte, Montana in 1981.  Since that time I have completed graduate business courses towards a Masters of Business Administration degree and am a registered Professional Engineer with the State of Idaho.  My professional career includes over six years of experience as a Staff Engineer with the Phillips Petroleum Company, seven years as a Project Manager/ Engineer with MK-Environmental, three years as a Project Manager/Engineer with Dow Environmental, a subsidiary of The Dow Chemical Company, and two years with the Idaho Division of Environmental Quality.  In my current position with the Commission, I am responsible for analysis of utility rate applications, rate design, tariff analysis, and utility customer inquiries.

Q.What is the purpose of your testimony in this case?

A.The purpose of my testimony is to address United Water Idaho’s (UWI) proposal to reduce test year revenue to reflect a decline in Micron’s total water consumption subsequently recorded in the 1997-1998 period.

Q.Please summarize your testimony.

A.I recommend that the Commission reject the Micron test year revenue requirement adjustment.  I base my recommendation on two points:

First, UWI has not submitted sufficient documentation showing that Micron’s reduction in water usage is known and measurable.  Moreover, no other causes for the reduction, such as reduced irrigation, have been considered and/or evaluated.  Second, Micron’s historical water usage is so variable that the identified reduction is not unusual and an increase may occur in the near future.

No information has been provided regarding the reclamation process or the reliability over time of the consumption levels.  Even Micron appears skeptical about the sustainability of the reduced water consumption.  Without firm supporting documentation demonstrating the probability of a continued long-term reduction in water consumption by Micron, I believe it would be inappropriate to allow an out of test year revenue requirement adjustment at this time.

Q.Please discuss your position that there has been a lack of supporting documentation submitted by UWI in regards to the reclamation processes.

A.My concerns regarding the submitted documentation are threefold.  One, there is no technical description, operational data, or even general description of Micron’s reclamation processes.  Second, the documentation submitted fails to demonstrate that the reduced consumption is not the result of some other reason, such as lower irrigation usage rates or reduced production.  Third, the documentation submitted is contradictory when compared to actual consumption data.  In each case the information submitted does not provide the necessary support required to show that the reductions in total water consumption are solely attributable to the reclamation processes or that the causes for the reduction are known, measurable and sustainable.

Q.Please explain your concerns regarding the lack of technical and operating data.

A.The reduction is credited solely to the startup of reclamation equipment.  However, not even general information has been submitted regarding the capacity of the system, operational periods, or even the type of processes used.  I assume that the construction and operation of an expensive reclamation process would be closely monitored by Micron, especially the quantity of water reclaimed, in order to determine the cost effectiveness of the equipment.  But no such data has been furnished by UWI.  Therefore, to simply state that all reductions in total water usage is solely due to the startup of the reclamation equipment, without providing actual operating data in support, is requiring us to accept an opinion without being able to evaluate the facts.  This is especially true in light of Micron's highly variable water consumption history and similar reduced test year consumption that was not sustained.  I will discuss these issues in more detail later in my testimony.

Q.Please describe the documentation that has been provided by UWI and Micron.

A.The documentation presented by UWI primarily consists of two letters:  one from Micron to UWI dated September 4, 1996 and one from UWI to Micron dated April 3, 1998.  The 1996 letter states only anticipated startup and estimated consumption figures — not actual data.  Furthermore, this letter does not specify the type of reclamation equipment and the amount of the reduction, rather it states that the industrial consumption will be reduced to 100 gpm. and irrigation consumption will vary from 200 to 400 gpm.  A copy of this letter is provided in Staff Exhibit No. 120.

The second letter from UWI to Micron, given in Staff Exhibit No. 121, states that a reduction in consumption has occurred compared to the previous period based on two billing periods of data.  I need to point out that in this letter UWI is informing Micron of the reduction in water consumption.  Micron is not documenting the reduction.  This letter provides limited actual data and again relies on projected future usage rates.  This letter also includes the following language specifically added by Micron:  “These estimates are not binding on Micron Technology, Inc. as future conditions may cause changes in your water demands.”

Q.What other documentation has been submitted by UWI?

A.UWI witness Gradilone’s direct testimony, dated August 1998, addresses the Micron reduction on pages 8 and 9.  Associated with his testimony is Exhibit 2, Schedule 24, which provides a review of Micron’s reduction in total usage for the 1996/1997 and 1997/1998 billing periods.  These documents attribute all reductions to the reclaim system started up in 1997, claim a 35% reduction in total consumption from last year, and project that the annual reductions should be expected for the next two years.

In response to Staff Production Request

No. 33, UWI states that Micron reportedly has informed UWI that they project industrial consumption will be 120 gpm potable water, 200 gpm industrial, and 300 gpm irrigation; a total of up to 36,966 ccf, based on three months of current data.  A copy of this response is provided as Staff Exhibit No. 123.

Neither of these documents present clear evidence that the reclamation processes are solely responsible for the total reduction.

Q.Did you specifically ask UWI to provide this technical and operational data?

A,Yes, we did.  In Staff Production Request No. 39, a copy of which is provided as Staff Exhibit

No. 122, an inquiry was made regarding the reclamation processes.  UWI reports that Micron refused to provide even general information regarding these processes — no capacity data, no dates of startup, or even a generic equipment description — information that I believe would have limited value to a competitor but is essential to evaluate the reasonableness of the proposed adjustment.

Q.Please describe the deficiencies you noted in the documents submitted.

A.The aforementioned documents primarily contain estimates of industrial and irrigation usage, not actual data.  In reference to UWI’s response to Staff Production Request No. 32, Micron states they have no records of past irrigation usage.  Furthermore, in response to Staff Production Request No. 34, no details on reduced irrigation consumption were provided, other than to relate an unquantified “reduction” in irrigation back to the “unidentified” reclamation processes.  Copies of these documents are provided in Staff Exhibit Nos. 124 and 125, respectively.

Consequently, it is clear that the impact of irrigation consumption on the claimed reduction is not quantified.  Given the fact that irrigation can account for approximately 50% of Micron’s water consumption during the summer months, as noted in Staff Exhibit No. 123, I believe that this use should be well documented.

Q.But didn’t UWI submit information on Micron’s projected irrigation consumption, referencing response to Staff Production Request No. 32?

Yes, UWI estimated Micron’s historical irrigation consumption data based on the winter season consumption, as is common practice for residential customers.  In this method the consumption during the months of November, December, January and February are averaged and considered the base load for the entire year.  Irrigation consumption is then estimated by subtracting this base load number from the consumption figures for the summer irrigation months.

In Staff Exhibit No. 126 Micron’s estimated irrigation consumption is plotted for the years 1986 through 1998 using the aforementioned method.  Note the high variability in the estimated irrigation flow estimates using the winter season/base-load calculation method.  The net irrigation consumption shown in this graph shows a very high degree of variability: -735.3% to +471.6% from the average of winter consumption figures.

Micron’s variability between the winter average and estimated irrigation flows is much larger than for residential and commercial customers.  For comparison purposes I performed a similar evaluation of the residential and commercial customers for the same period.  This method is well applied to residential and commercial customers, as seen in Staff Exhibit No. 127, where a consistent pattern of peaking irrigation flows occur.  Note that the irrigation estimates vary only -112.6% to +145.6% from average for residential customers and -129.3% to +134.1% from average for commercial customers.

Because of this high variability, using winter consumption as the basis for estimating base load consumption and irrigation consumption is very inaccurate for large industrial customers such as Micron.  And consequently this methodology of estimating consumption thereby reduces the accuracy of the adjustment proposed by UWI.

Q.If Micron’s average winter consumption shows a significant reduction since the previous period, isn’t this an indication of a reduction in industrial consumption and therefore justification for the adjustment to test year revenues?

A.The reduction in average winter consumption from the previous year does indicate industrial use changed.  However, this presumed “permanent” reduction is based upon only two winter billing periods, with the balance of the year potentially impacted by reduced irrigation consumption.  Furthermore, it must be understood that month-to-month and year-to-year variations are the rule, not the exception.  Based on my experience variability in industrial consumption is to be expected since industrial facilities can have sudden and significant consumption changes at any time during the year, including during the winter months, based on system operational needs. As I previously testified the documentation submitted by UWI does not adequately demonstrate that the decline in consumption is solely attributable to the operation of the reclamation equipment.

To further show that use of average winter consumption is an invalid method of estimating the annual industrial consumption, I have calculated the percent changes in winter consumption versus percent changes in total consumption.  The results of this analysis are tabulated in Staff Exhibit No. 128.  Note that historically the percentage change in average winter consumption is not an accurate estimate of the resulting change in total annual consumption.  The data in the table also shows the large year-to-year variability in the consumption, both during the winter periods and annually.  For example, comparing the average winter consumption from year-to-year shows changes of -79% to +299% have occurred since 1988.  I will discuss the historical variability in consumption in more detail later in my testimony.

I will also show later in this testimony that the current reduction is well within historical values and that Micron’s consumption is so variable that it is questionable whether the current reduction will be maintained in the future.  In fact Micron has indicated they will only commit to the projected consumption figures for a period of 12 to 24 months.

Q.You just stated that Micron has indicated that they will only commit to maintaining the projected consumption levels -- 200 gpm industrial, 120 gpm potable and 300 gpm irrigation -- for only 12 to 24 months.  Please explain this position.

As further support to the position that this reduction may not be long term, consideration was given to the statement in UWI's April 3, 1998 letter to Micron (Staff Exhibit No. 121) that UWI "... should anticipate this usage rate to continue over the next 12 to 24 months."  Further it is stated in this letter that "These estimates are not binding on Micron Technology, Inc. as future conditions may cause changes in your water demands."  Since the reclamation system was started up in late 1997 this appears to leave Micron only "committed" to operating at these reduced consumption levels for one more year and even the level of consumption during that period is unclear.

Q.You indicated earlier that the documentation submitted appeared to be contradictory to actual consumption data.  Please explain this comment.

The problems I noted were between the estimated consumption data and actual consumption data available since the startup of the reclamation equipment in 1997.  For example, the stated industrial and potable average consumption figures of 200 gpm and 120 gpm, respectively, versus the actual consumption figures for the current year are contradictory.  The industrial and potable consumption of 320 gpm would set consumption at 36,965 ccf per bimonthly billing period.  However, this conflicts with the fact that every billing for 1997/1998 period to date has shown consumption at least 23% above this level, including during the winter months as shown in Staff Exhibit No. 129.

Q.Did you evaluate water consumption using Micron’s estimated irrigation flow of 300 gpm?  Were there any contradictory findings in this evaluation?

A.Yes.  I evaluated irrigation consumption using the method presented in UWI’s response to Staff Production Request No. 32.  I found that the assumption that irrigation flows were in the range of 150 gpm to 300 gpm during the May 1998 and July 1998 billing periods causes a potential contradiction when compared against the industrial and potable consumption projections of 200 gpm and 120 gpm, respectively.  The actual total industrial and potable consumption over these billing periods would have had to have been on the order of 230 gpm, much lower than projected.  This indicates to me that either the use of a general irrigation rate of 300 gpm is not a good estimate of irrigation consumption, or, that the industrial and potable consumption projections are inaccurate.  I would tend to believe that temporal changes in irrigation consumption from the projected figures are at least partially reflected in the noted reduction in total consumption.

The documentation submitted does not adequately document the actual impact of the reclamation processes but rather the documentation submitted is a source of contradictory information and inconsistency in estimating the noted reduction in Micron’s total consumption.

Q.You stated earlier that historically Micron’s water usage is so variable that the noted reduction is not unusual and may certainly increase in the near future.

A.Yes.  This point is supported in several ways including: reviewing the large historical month-to-month and annual changes in consumption; referencing Case No. BOI-W-93-1 where Boise Water had reported that Micron had taken action to reduce outside purchases; and, referring to Micron's statements that the current reductions may only be in effect for a two-year period and they do not want to be held accountable to maintaining the current consumption levels.

Q.You stated that Micron has experienced large historical annual changes in consumption.  Please explain this comment.

The graph in Staff Exhibit No. 130 shows the monthly total consumption since 1986.

The average annual total consumption is 373,607 ccf with variations of +55% or 207,098 ccf and -75% or 279,605 ccf from the average.  Please note that the reported reduction from the 1996/1997 to 1997/1998 periods, 21 to 35% is within this range of variability.  The current reduced consumption level may still be considered typical for Micron given it's history and in my opinion does not necessarily signify a new historical trend of lower water consumption.

Q.And in regards to short term month-to-month variability?

A.Yes, Micron has shown bimonthly variations of as much as -33% and +27% within the last couple of years.  Even larger variations occurred in the early 1990's.  Consequently, I feel that these short-term variations further show that Micron's consumption can change very quickly and significantly within a short time period.

Q.You referenced a previous case where a reduction in Micron’s total consumption was used to adjust the revenue requirement.  Please describe this case.

In Case No. BOI-W-93-1, the test year revenue was adjusted to account for a reduction in Micron’s total consumption.  Micron had installed and had been operating their own water supply well since September 1991, thereby reducing water purchases.  As shown in the graph given in Staff Exhibit No. 130, since the startup of the well in 1991 the total consumption by Micron had dropped from 477,111 ccf in 1991 to 158,988 ccf in 1992 to 96,951 ccf in 1993.  A total reduction of about 80% or 380,160 ccf.  This quantity is roughly twice the volume being claimed in this case   Given the documentation presented in the BOI-W-93 case, the Commission allowed Boise Water to adjust the test year revenue and rates accordingly.

Q.And what events transpired after this case was completed?

A.The reduced consumption level was soon found to be short-lived as shown in Staff Exhibit No. 130.  In the following years Micron's consumption increased dramatically to 172,053 ccf in 1994, 376,210 ccf in 1995 and 615,755 ccf in 1996.  An increase in consumption of over 518,800 ccf or 535% since 1993.  The approval of the  adjustment in revenue in 1993, followed by the huge increase in consumption, is cause for reflection in this case.  Micron has a history of higher water use in the past and so may very well increase use once again in the near future.

Q.Does this conclude your direct testimony in this proceeding?

A.Yes, it does.