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Idaho Public Utilities Commission  
Office of the Secretary  
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Boise, Idaho

*Attorneys for Applicant*

BEFORE THE IDAHO PUBLIC UTILITIES COMMISSION

IN THE MATTER OF THE APPLICATION  
OF UNITED WATER IDAHO INC. FOR  
AUTHORITY TO INCREASE ITS RATES  
AND CHARGES FOR WATER SERVICE IN  
THE STATE OF IDAHO

Case No. UWI-W-04-04

BEFORE THE IDAHO PUBLIC UTILITIES COMMISSION

DIRECT TESTIMONY OF A.T. WALLACE

1 Q. Please state your name.

2 A. My name is A. T. Wallace, Ph.D. P.E.

3 Q. What is your business address?

4 A. Department of Civil Engineering, University of Idaho, Moscow, Idaho.

5 Q. What is your occupation?

6 A. I am a Professor Emeritus of Civil Engineering.

7 Q. Please describe your training and experience.

8 A. I have been a Civil Engineering teacher for over 40 years, specializing in  
9 the fields of water and wastewater engineering and construction law. My  
10 qualifications are more fully explained in the *vita* attached to my  
11 testimony as Exhibit No. 13.

12 Q. What is the purpose of your testimony?

13 A. I have been asked by United Water Idaho (“United” or “Company”) to  
14 express my professional opinion on certain matters relating to the  
15 construction of the Columbia Water Treatment Plant(CWTP).

16 Specifically, my testimony addresses these topics:

- 17 1. The reasonableness of the company’s decision to construct a  
18 surface water treatment plant.
- 19 2. The reasonableness of the company’s decision to employ a  
20 design-build procurement process for the project.
- 21 3. The reasonableness of the company’s decision to install  
22 membrane technology.

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1 Q. Turning your attention to the company's decision to construct a surface  
2 water treatment plant, have you reviewed the direct testimony of Scott  
3 Rhead which discusses the Company's decision to construct a surface  
4 water treatment plant?

5 A. Yes, and I have also independently reviewed the 1998 Water System  
6 Master Plan, prepared for United Water Company by the firm of  
7 Montgomery-Watson and the Treasure Valley Hydrologic Project Report.

8 Q. Based on your training and experience and upon your investigation and  
9 analysis, in your professional opinion, was the company's decision to  
10 construct a surface water treatment facility reasonable in light of the  
11 supply options and demands for water service existing at the time the  
12 decision was made?

13 A. Yes. I believe the analysis contained in Mr. Rhead's testimony is based on  
14 sound engineering principles and that it fully documents the need for a  
15 surface water treatment plant.

16 Q. Did you perform your own independent analysis of this decision?

17 A. Yes. I examined the issue from the perspective of Idaho Division of  
18 Environmental Quality (DEQ), the primary regulatory agency. DEQ  
19 certifies a water system's capacity as adequate if it is equal to or exceeds  
20 the design maximum day demand with the largest producing well out of  
21 service. This standard for system adequacy is based on, a recommendation  
22 of the Great Lakes Upper Mississippi Board of State Public Health and  
23 Environmental Managers in their Recommended Standards for Water

1                   Works (2003). This document is incorporated by reference into Idaho's  
2                   Design Standards for Public Drinking Water Systems at IDPA 58.01.08  
3                   (550.01). The Recommended Standards for Water Works, also referred to  
4                   as "the 10 States Standards" is generally recognized as the authoritative  
5                   standard for public water system design. In applying this criterion to the  
6                   Gowen/Columbia service level, I am told by United Water engineers that  
7                   over 10,000 services and a population of over 20,000 people are expected  
8                   to be supplied by the year 2015. Historical data indicate a maximum day  
9                   demand at that time of about 16 mgd. The existing 'exceptional' quality  
10                  groundwater available in this service level is only 13 mgd and would be  
11                  only 10.2 mgd with the Company's Pleasant Valley well out of service. In  
12                  addition, lower elevation service levels, such as Barber and East Main, are  
13                  supported from the Gowen/Columbia water supplies, which further  
14                  exacerbates this water supply deficit. As discussed in Mr. Rhead's  
15                  testimony, the supply deficit of slightly under 6 mgd cannot be imported  
16                  from other service levels. After consulting with Mr. Rhead and Dr.  
17                  Christian Petrich, the primary author of the Treasure Valley Hydrologic  
18                  Project Report, it is my opinion that, although potential for developing  
19                  additional wells in this area does exist in theory, many factors militating  
20                  against much additional groundwater development also exist.  
21                  I was also very much persuaded by the arguments over non-economic  
22                  benefits presented in Section 10 of the 1998 Master Plan. The benefits  
23                  which seemed most attractive were flexibility of system operation, the

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1 high degree of public acceptance, the ability to respond to changing  
2 regulations and most significant, the reduction in the uncertainty factor  
3 with regard to supply. While groundwater will always be a major  
4 component of United's supply, there are always reliability issues with  
5 wells; their screens, pumps and other hardware. In a rapidly-growing area  
6 such as the Boise Valley, there is particular concern over the status of  
7 recharge areas for many of the existing wells. As one small dump of a  
8 hazardous chemical onto the ground can put a given well out of service for  
9 many years while remedial measures are being implemented, it is my  
10 opinion that the Company should make decisions to try to reduce reliance  
11 on groundwater supplies to the extent possible, particularly in the South  
12 East Boise area.

13 Q. Turning your attention to the decision to employ a design-build  
14 procurement process, what investigation and analysis did you undertake?

15 A. First let me state that I have taught a course entitled "Engineering Law and  
16 Contracts" at the University of Idaho annually since about 1986. Design-  
17 Build, as a method of project delivery, is covered in this course, as are  
18 several other methods, including the "traditional" Design-Bid-Build  
19 method. This course focused on the essentials of each method and the  
20 advantages and disadvantages associated with each. In addition to this  
21 general background, I was supplied with several documents from United's  
22 staff which dealt with this particular procurement. These included the  
23 Request For Proposal (RFP) issued in April, 2002, the list of invited

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1           proposers and about a half-dozen pieces of correspondence between  
2           United and the successful proposer dealing with clarifications, contract  
3           conditions and projected costs, including a guaranteed maximum price.

4           Q.    Based on your training and experience and upon your investigation and  
5           analysis, in your professional opinion, was the Company's decision to  
6           employ a design-build procurement process consistent with prudent  
7           business practice within the water industry?

8           A.    Yes, it was.

9           Q.    Would your please explain the basis for your opinion.

10          A.    As previously stated, there are many methods of project delivery, each  
11          with its peculiar set of advantages and disadvantages. Design-Build is a  
12          method which has seen increasing interest from all types of owners over  
13          the past ten years or so.

14                   As these owners have gained experience with the method and have  
15          shared these experiences with others by reporting their case histories in  
16          trade and professional publications, other owners have been more willing  
17          to use this method of project delivery in order to take advantage of its  
18          potential benefits. Some of the advantages of the Design-Build delivery  
19          method, which have been well-documented on many past projects,  
20          include:

21          a.    The owner only needs to deal contractually with a single  
22          organization. This is significant as it increases efficiency, saves time and  
23          reduces potential conflict.

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1           b.     The friction and finger-pointing which often occurs in the  
2           traditional method of project delivery (Design-Bid-Build) when things go  
3           wrong, is normally lacking and if it does occur, more easily resolved.

4           c.     The close relationship between the design team and the  
5           construction team leads to more efficient constructability of the design  
6           concept because of the input of construction-savvy people during design  
7           reviews.

8           d.     This same relationship results in a more harmonious project  
9           administration, especially with regard to interpretation of drawings and  
10          specifications, as the design team and build team have less to “prove” to  
11          one another.

12          e.     Because the two teams are part of the same organization, many of  
13          the scheduling and cost-saving advantages of fast-tracking (another  
14          method of project delivery) become available to the owner.

15          Q.     Turning your attention to the question of the use of membrane technology,  
16          what investigation and analysis did you undertake?

17          A.     I have general background related to membrane processes, both pressure  
18          and electrically driven, which comes from teaching a graduate-level  
19          course in Water/Wastewater Unit Operations annually from 1965-67 at  
20          Clemson University and 1967-2000 at the University of Idaho and  
21          Washington State University. Course presentations focused on process  
22          principles, process design and case histories related to applications of the  
23          five major categories of this technology. In addition, I have evaluated the

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1 use of micro- and ultra-filtration in connection with three past projects, all  
2 involving wastewater, rather than water. However, two of these involved  
3 reclamation and reuse of secondary effluents, an application quite similar  
4 to treatment of water for potable use.

5 In connection with the Columbia Water Treatment Plant, the  
6 primary references I used were the 1998 Water Supply Master Plan, for  
7 general background, and the January, 2002 Basis of Design Report,  
8 prepared for United by a team of engineers from the firms of  
9 Montgomery-Watson-Harza and Carollo Engineers. This report dealt  
10 more specifically with the application of ultra-filtration at the proposed  
11 Columbia facility and included the results of pilot-scale studies using  
12 Boise River water.

13 Q. Based on your training and experience and upon your investigation, in  
14 your professional opinion, was the company's decision to install  
15 membrane technology consistent with prudent engineering judgment  
16 within the water industry?

17 A. Yes it was.

18 Q. What is the basis of your opinion?

19 A. First, I need to remark that there is nothing wrong with conventional  
20 technology, of the type incorporated into the Company's Marden plant.  
21 Such treatment trains have served the public well, will continue to do so,  
22 and in some cases, may still be the proper choice among competing  
23 alternatives.

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1 performed prior to the selection of membrane filtration as the main  
2 process at the Columbia plant demonstrated its feasibility convincingly.

3 Although the testing period was only two months, August and  
4 September, these are likely to be the critical months of operation because  
5 of high algal concentrations in the Boise River during this period. The  
6 study results provide a high level of confidence that the selected design  
7 concept will perform as expected.

8 Q. Does that conclude your testimony?

9 A. Yes, it does.