

CONSUMERS ILLINOIS WATER COMPANY

**DIRECT TESTIMONY
OF
MICHAEL H. WINEGARD**

WITNESS BACKGROUND IDENTIFICATION

Q. PLEASE STATE YOUR NAME AND BUSINESS ADDRESS?

A. Michael H. Winegard, Consoer Townsend Envirodyne Engineers, Inc., 303 E. Wacker Drive,
Suite 600, Chicago, IL 60601-5212.

Q. BY WHOM ARE YOU EMPLOYED?

A. I am employed by Consoer Townsend Envirodyne Engineers, Inc. ("Consoer Townsend").

Q. WHAT IS YOUR POSITION WITH CONSOER TOWNSEND?

A. I am Vice President.

Q. WHAT IS YOUR EDUCATIONAL AND BUSINESS BACKGROUND?

A. I am a 1977 graduate of the College of Engineering at Marquette University and I received a
Masters of Business Administration with a specialization in Finance from Loyola University in
1980. I have been employed by Consoer Townsend since 1974, when I was a co-op student

1 attending Marquette University; and as a full-time employee since 1977. I became a
2 Vice-President of the firm in the fall of 1987.

3
4 **PURPOSE OF TESTIMONY**

5 **Q. WHAT IS THE PURPOSE OF YOUR TESTIMONY?**

6 A. The purpose of my testimony is to sponsor the Water Production Facilities-Comprehensive
7 Report (“Report”) which has been marked for identification as CIWC Exhibit 10.1. The
8 Report addresses the need for new facilities in the Vermilion County Division to comply with
9 environmental regulations ("Regulatory Compliance Facilities"). I will also discuss the
10 recommendations of the Report.

11
12 **Q. WOULD YOU INDICATE WHO PREPARED THE REPORT?**

13 A. Yes. The Report was prepared by Consoer Townsend Envirodyne Engineers, Inc. I
14 supervised all aspects of the preparation.

15
16 **Q. WHAT IS THE PURPOSE OF THE REPORT?**

17 A. The purpose of the Report is to evaluate options for upgrading the quality of the finished water
18 produced by Consumers Illinois Water Company’s Vermilion County Division. Most notably,
19 the Report evaluates options to address high nitrate levels in the finished water supply. The
20 Report, however, also took into account other regulatory concerns impacting the Vermilion
21 County Division including: synthetic organic compounds; disinfectants/disinfection byproducts;

1 turbidity; and filter backwash recycle. The Report assesses various feasible methods for use in
2 addressing the relevant concerns. In order to make a recommendation for the best and most
3 cost-effective long term approach, projected water qualities, costs, and operational
4 considerations were evaluated.

5
6 **Q. WHAT TREATMENT OPTIONS FOR NITRATE ABATEMENT WERE CHOSEN**
7 **FOR EVALUATION?**

8 A. The options evaluated included: aquifer storage and recovery; biodenitrification; nanofiltration;
9 side channel storage; ground water blending; ion exchange; and reverse osmosis (RO). Of
10 these options, only the latter 4 were deemed feasible in light of the water quality conditions at
11 the Vermilion County Division.

12 17.

13 **18. Q. DOES THE REPORT SET FORTH A COMPREHENSIVE EVALUATION**
14 **OF EACH FEASIBLE APPROACH?**

15 19. A. Yes. Cost estimates were prepared for each of the feasible alternatives. The analyses
16 included estimated capital and operating costs, and a present worth analysis.

17
18 **Q. WHAT ASSUMPTIONS WERE USED IN THE COST ANALYSES?**

19 A. As discussed by Mr. Cummings, the Report utilized assumptions which are based on recent
20 (post-1992) data. The Report assumes that 90 days of nitrate treatment would be required
21 over a three-year period. The annual normalized number of treatment days are, therefore, 30.

1 The analysis assumes that treatment would be applied when the nitrate concentration is 9.0 mg/l
2 or above. Also, based on consultation with IEPA, the Report assumes that the alternative
3 selected will provide treatment of nitrate concentrations of up to 15.6 mg/l. Each of the major
4 design criteria used to examine the alternatives is set forth in Table 7-1 of the Report (Exhibit
5 10.1), on page 7-1.
6

7 **17. Q. PLEASE DESCRIBE THE COST ANALYSES.**

8 A. The economic analysis of each of the alternatives is discussed in Section 8 of the Report
9 (CIWC Exhibit 10.1). Each major alternative was analyzed to project an annual present value
10 of revenue requirement for the alternative. Both capital and annual operating costs were
11 considered. For each analysis, an annualized operating period of 30 days was utilized. Certain
12 costs are common to each of the analyses. These include costs associated with a bulk carbon
13 system; filter improvements and constructing new river intakes and upgrading the Supervisory
14 Counsel and Data Acquisition (SCADA) System. Each of these improvements is necessary for
15 compliance with applicable regulations and, therefore, the associated costs are common to all of
16 the alternatives examined. As the report indicates, a cost analysis was performed for Side
17 Channel Storage, Tables 8-3 through 8-5; Ground Water, Tables 8-6 through 8-8; Ion
18 Exchange (co-current, counter-current and continuous contactor modes), Tables 8-9 through
19 8-17; and RO, Tables 8-18 through 8-20.
20

1 **17. Q. WHAT WERE THE RESULTS OF THE COST ANALYSES?**

2 A. The following table summarizes the results of the analyses of alternatives:

<u>TREATMENT ALTERNATIVE</u>	<u>CAPITAL COST ESTIMATE</u>	<u>ANNUAL OPERATION & MAINTENANCE COST ESTIMATE (1999)</u>	<u>PRESENT VALUE OF REVENUE REQUIREMENT ESTIMATE</u>
Side Channel Storage	\$12,936,290	\$ 45,000	\$21,604,304
Groundwater	\$12,663,290	\$ 25,000	\$20,770,010
Ion Exchange	\$ 6,379,790	\$ 95,790	\$11,315,352
Reverse Osmosis	\$ 7,566,290	\$434,000	\$17,298,741

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4 **Q. BASED ON THE REPORT, WHAT IS YOUR RECOMMENDATION?**

5 A. Based on the present value revenue requirement analysis for the feasible treatment alternatives,

6 CTE recommended that CIWC pursue the least-cost option, which is an ion exchange system.

7 Specifically, ion exchange with counter-current regeneration was recommended. Also, the

8 possibility of obtaining a new or modified NPDES permit to discharge the ion exchange waste

9 to the existing pond or the sludge lagoons should be investigated, as it would further reduce both

10 the capital and operating costs with regards to waste water disposal.

11

1 **Q. IF CIWC RECEIVES APPROVAL TO DISCHARGE THE ION EXCHANGE**
2 **WASTE TO THE EXISTING POND OR SLUDGE LAGOONS, WOULD THAT**
3 **CHANGE YOUR RECOMMENDATION?**

4 A No. If such approval is obtained, this would simply further reduce the present value revenue
5 requirement for the ion exchange methodology. Implementation of the ion exchange approach is
6 appropriate whether or not a discharge permit is granted.

7

8 **Q. DOES THIS CONCLUDE YOUR TESTIMONY?**

9 A. Yes it does.

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