



Control Number: 45231



Item Number: 71

Addendum StartPage: 0

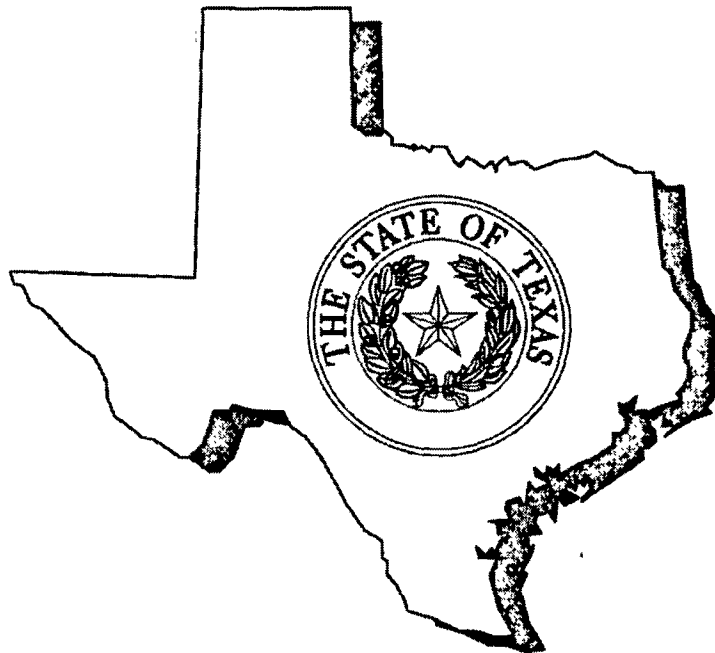
**SOAH DOCKET NO. 473-16-1836.WS  
PUC DOCKET NO. 45231**

**RATEPAYER'S APPEAL OF THE  
DECISION BY TROPHY CLUB  
MUNICIPAL UTILITY DISTRICT  
NO. 1 TO CHANGE RATES**

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**BEFORE THE STATE OFFICE  
OF  
ADMINISTRATIVE HEARINGS**

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**DIRECT TESTIMONY OF  
ELISABETH ENGLISH  
WATER UTILITY DIVISION  
PUBLIC UTILITY COMMISSION OF TEXAS  
SEPTEMBER 20, 2016**

## Table of Contents

I. PROFESSIONAL QUALIFICATIONS .....	3
II. PURPOSE AND SCOPE OF TESTIMONY .....	4
III. RATE DESIGN .....	5
IV. RECOMMENDATIONS.....	13

### ATTACHMENTS:

Attachment EE-1	Resume of Elisabeth English
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1  
2 **I. PROFESSIONAL QUALIFICATIONS**

3 **Q. Please state your name and business address.**

4 A. Elisabeth English, Public Utility Commission of Texas, 1701 N. Congress Avenue, Austin,  
5 Texas 78711-3326.

6 **Q. By whom are you currently employed and in what capacity?**

7 A. I have been employed by the Public Utility Commission of Texas (PUC or Commission)  
8 since December 1, 2014, as an Engineering Specialist IV in the Water Utilities Division.

9 **Q. What are your principal responsibilities at the Commission?**

10 A. My responsibilities include: reviewing and processing applications to obtain or amend a  
11 certificate of convenience and necessity (CCN); Sale/Transfer/Merger (STM) applications;  
12 rate/tariff change applications; rate appeal cases; and participating in negotiating settlements  
13 and preparing testimony and exhibits for contested case matters involving investor-owned,  
14 non-profit and governmental retail water and sewer utilities. In addition to these  
15 responsibilities, I am also assigned to several rule change and form projects at the PUC and  
16 provide technical and program support for temporary managers/receivers.

17 **Q. Please state your educational background and professional experience.**

18 A. I have provided a summary of my educational background and professional regulatory  
19 experience in Attachment EE-1.

20 **Q. Please explain how your previous experience relates to this docket.**

21 A. My previous experience directly relates to the regulatory oversight of public water systems  
22 (PWSs) in Texas. From March 2009 to August 2012, I was a PWS regional investigator for  
23 the Texas Commission on Environmental Quality (TCEQ), and from August 2013 until  
24 November 2014, I worked in the TCEQ's central office in the Public Drinking Water

1 Division. As an investigator, I conducted Comprehensive Compliance Investigations (CCIs)  
2 which evaluated PWS compliance with 30 Tex. Admin. Code § 290, Subchapter D (TAC).  
3 My role while working at the TCEQ in its central office included working on multiple  
4 drinking water compliance programs which evaluated PWS compliance with 30 TAC § 290,  
5 Subchapter F. Pursuant to the PUC's rules in 16 TAC § 24.102(a)(1), the review and  
6 processing of applications to obtain or amend a water CCN requires the PUC to ensure that  
7 the applicant has a TCEQ approved PWS, or a contract for purchased water, and that the  
8 applicant is capable of providing drinking water that meets the requirements of Tex. Health  
9 and Safety Code § 341 (HSC). In turn, the HSC requires that PWSs comply with the  
10 standards set forth in 30 TAC § 290, Subchapters D and F.

11 **Q. On whose behalf are you testifying?**

12 **A.** I am testifying on behalf of the PUC Staff (Staff).

13 **II. PURPOSE AND SCOPE OF TESTIMONY**

14 **Q. What is the purpose of your testimony?**

15 **A.** I will present Staff's recommendation for the rate design for the retail water and sewer  
16 service provided to the ratepayers of Trophy Club Municipal Utility District ("Trophy Club"  
17 or "MUD") in response to the rate appeal presented by the MUD's ratepayers on November  
18 10, 2015.

19 My participation can be summarized as follows:

20 1. I reviewed the rate appeal and supplemental fillings by the Appellants and the City of Trophy  
21 Club (City) with respect to the criteria in the Texas Water Code (TWC) and the  
22 Commission's rules.

1       2. I reviewed the testimony provided by Mr. Chris Ekrut in his testimony on behalf of the MUD  
2       and the direct testimony of an intervenor, Mr. William Rose, on behalf of the MUD's  
3       ratepayers.

4       3. I have reviewed the pre-filed testimony and financial recommendations prepared by Mr.  
5       Andrew Novak.

6       **Q.     What is the basis of your recommendation?**

7       **A.**TWC § 13.043(b), (c), and (d) state that any party to a rate proceeding before the governing  
8       body of a municipality may appeal the decision of the governing body to the Commission.  
9       An appeal under this subsection must be initiated within 90 days after the date of notice of  
10      the final decision by the governing body, by filing a petition for review with the Commission  
11      and by serving copies on all parties to the original rate proceeding. The Commission shall  
12      hear the appeal de novo and shall fix in its final order the rates the governing body should  
13      have fixed in the action from which the appeal was taken and may include reasonable  
14      expenses incurred in the appeal proceeding. The Commission may establish the effective  
15      date for the rates at the original effective date as proposed by the utility provider and may  
16      order refunds or allow a surcharge to recover lost revenues. The Commission may consider  
17      only the information that was available to the governing body at the time the governing body  
18      made its decision and evidence of reasonable expenses incurred in the appeal proceedings.

19      **III. RATE DESIGN**

20      **Q.     Please describe the MUD's retail water and sewer rates that are the basis of this appeal?**

21      **A.**The MUD increased the retail water and sewer base rates and volumetric charges for all  
22      customers with an effective date of September 1, 2015. The MUD's rates can be summarized  
23      as follows:<sup>1</sup>

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<sup>1</sup> Pre-filed Direct Testimony & Exhibits of Chris Ekrut, (Jun. 21, 2016) at 9 (Ekrut Testimony).

Water:	Previous Rate	Appealed Rate
<b>Monthly Meter Charge</b>		
¼ inch or less	\$12.71	\$12.99
1 inch	\$16.71	\$20.39
1 ½ inch	\$26.42	\$32.23
2 inch	\$28.06	\$46.43
3 inch	\$65.23	\$79.58
4 inch	\$104.04	\$126.93
6 inch	\$201.06	\$245.29
<b>Volumetric Charge (per 1,000 Gallons)</b>		
0-6,000	\$2.70	\$3.03
6,001-17,000	\$3.14	\$3.53
17,001-25,000	\$3.64	\$4.09
25,001-50,000	\$4.23	\$4.75
50,001 +	\$4.91	\$5.52
<b>Sewer:</b>	<b>Previous Rate</b>	<b>Appealed Rate</b>
Monthly Base (ALL)	\$14.58	\$15.35
<b>Volumetric Charge (per 1,000 Gallons water consumption)</b>		
Residential - 18,000 Gallon cap	\$2.50	\$2.63
Non-residential- No cap	\$2.50	\$2.63

**Q. How did you analyze the retail water rate set by the MUD?**

A. I used the projected number of connections and the projected usage provided by the MUD, as provided in the testimony of Mr. Ekrut, and the cost of service recommendation provided by Mr. Novak.

**Q. What test period did you use when preparing your testimony?**

A. I used the same test period provided by the MUD and the MUD's adopted budget for the Fiscal Year 2015 through 2016 (FY-2016), which was used to set the appealed retail water rate. Accordingly, I utilized the customer and volumetric projections as detailed in Mr. Ekrut's testimony in my analysis of the proposed rates.<sup>2</sup>

**Q. What cost of service did you use in your review of the MUD's proposed rates?**

A. I used the cost of service of \$5,074,661 for the MUD's retail water service and \$2,430,357 for the MUD's retail sewer service, which was recommended by Mr. Novak in his pre-filed testimony. Mr. Novak agreed with the MUD's budgeted cost of service, of which the total

<sup>2</sup> Ekrut Testimony at 21 through 27 Section VI "Development of Billing Determinants".

1 amount was \$7,505,018. The cost of service incorporates the cost of providing retail water  
2 service for both the MUD and Trophy Club Public Improvement District (PID). As detailed  
3 in Mr. Kevin Glover's testimony, the MUD and the PID are not operated separately<sup>3</sup>;  
4 therefore, the cost of service includes the entire production, distribution, collection, and  
5 treatment for the MUD and the PID. Furthermore, the rates charged to the MUD are  
6 ultimately charged to the ratepayers of the PID.

7 **Q. Does the MUD's rate design generate the cost of service, as presented by the MUD and**  
8 **Mr. Novak's testimony?**

9 Yes. Based on the projected customers and volumetric usage for FY-2016<sup>4</sup> the proposed rates  
10 generate the budgeted cost of service for the MUD, including the services provided to the  
11 PID.

12 **Q. Explain the appealed rate design for retail sewer service?**

13 All customers are charged a monthly base charge of \$15.35,<sup>5</sup> which is an increase of \$0.77<sup>6</sup>  
14 from the previous base charge. The ratepayers are then charged a volumetric charge based  
15 on the actual amount water used at \$2.63<sup>7</sup> per thousand gallons, which is an increase of  
16 \$0.13<sup>8</sup> from the previous volumetric charge. The actual water used is the volumetric amount  
17 of water that passes through the water meter, and is reflected in both the water and sewer  
18 billed amounts. However, customers that are considered "Residential" are not billed for  
19 sewer usage above 18,000 gallons of actual retail water used. Customers that are considered  
20 "Non-residential" are charged for actual retail water used with no cap.

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<sup>3</sup> Pre-filed Direct Testimony of Kevin Glover, (Jun. 21, 2016) at 5.

<sup>4</sup> Ekut Testimony at 22 through 23.

<sup>5</sup> Ekut Testimony at 9.

<sup>6</sup> *Id.*

<sup>7</sup> *Id.*

<sup>8</sup> *Id.*



1

2 **Q. What is the basis for the 18,000 gallon cap on actual retail water used for sewer billing**  
3 **purposes?**

4 The 18,000 gallon cap was determined, via a rate study conducted by an outside contractor  
5 (J. Stowe & Co. now operating as NewGen), by averaging the annual actual water usage per  
6 customer. This average was adopted following a rate study conducted in 2013.<sup>9</sup>

7 **Q. Is it appropriate to charge for retail sewer usage based on the water consumption?**

8 It can be appropriate to assign costs for unmetered, individual retail sewer usage via the  
9 metered potable retail water usage. The retail services, sewer and potable water, are not  
10 independent of each other and in this case, are provided by the same utility. The assumption  
11 for the cost allocation is that the water that passes through a potable water meter is then  
12 returned to the sewer system. This methodology does not allow for each ratepayer's outside  
13 water use which does not necessarily return to the sewer system. The method of charging for  
14 retail sewer service based on retail water consumption is more equitable for some retail  
15 public utilities than others in allocating the cost of service to ratepayers. This is dependent  
16 upon the amount of water used in the interior of the home versus outside the home, and the  
17 installation of irrigation meters within the potable water system which typically do not  
18 generate any sewer costs. For example, if the ratepayers' residences are primarily  
19 condominiums with little need for outside water use, then the interior water consumption is  
20 more likely to accurately reflect a ratepayers' individual discharge into the sewer system.

21 **Q. Does the MUD have different customer classes?**

22 16 TAC § 24.3 defines a customer class as a group of customers with similar cost of service  
23 characteristics that take utility service under a single set of rates. In Mr. Ekrut's testimony,  
24 he states that the MUD has only two types of customer classes, "In-District" or "Out-of-

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<sup>9</sup> Pre-filed Direct Testimony of Jennifer McKnight, (Jun. 21, 2016) at 9

1 District".<sup>10</sup> Both the ratepayers within the boundaries of the MUD and of the PID are charged  
2 as "In-District" ratepayers. In Mr. Rose's testimony he states that there are two customer  
3 classes, "Commercial" or "Residential" which are differentiated by the sewer rate.<sup>11</sup> I believe  
4 the use of an 18,000 gallon cap for retail, residential sewer service ultimately creates two  
5 groups of customers within the retail sewer ratepayers group when usage exceeds the 18,000  
6 gallon cap, thereby creating a situation where the ratepayers are not uniformly charged for  
7 the usage.

8 **Q. Is there a difference in the retail water quality of the residential and non-residential**  
9 **customers?**

10 Mr. Ekrut states that the water quality from all customers is of domestic strength,<sup>12</sup> and in  
11 Mr. Rose's testimony he agrees with this statement.<sup>13</sup> I did not see any documentation  
12 provided in this appeal that would indicate otherwise. Therefore, the per-unit cost to treat the  
13 water discharged by a residential customer is the same as the cost for the MUD's non-  
14 residential

15 **Q. Is there a difference in the retail sewer cost of service for higher volumetric sewer users**  
16 **versus lower volumetric sewer users?**

17 The overall cost of service for retail sewer service doesn't change based on groups of "high-  
18 users" or "low-users". However, the combined usage of all customers in conjunction with  
19 the cost to operate the sewer system determines the per-unit cost, which is the volumetric  
20 charge. Therefore, the cost of service is equitable for the amount used among all customers.

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<sup>10</sup> Ekrut Testimony at 20.

<sup>11</sup> Direct Testimony & Exhibits of William Rose, (Aug. 5, 2016) at 9 (Rose testimony).

<sup>12</sup> Ekrut Testimony at 35.

<sup>13</sup> Rose Testimony at 11.

1     **Q.     Should the MUD's rate design include separate customer classes for residential and**  
2           **non-residential customers?**

3           No, as stated above the water discharged by the MUD's customers is of equal quality;  
4           therefore, the per-unit cost to treat the water discharged by a residential customer is the same  
5           as for the MUD's non-residential customers.

6     **Q.     Is there an alternate way to charge for retail sewer service other than the actual water**  
7           **used method employed by the MUD?**

8           Yes, the MUD could also make use of the fixed charge method or a winter months' average  
9           method without the use of individual sewer meters. The fixed charge method would divide  
10          the budgeted cost of service between the projected number of connections for the budgeted  
11          year. However, this method does not encourage conservation nor is it reflective of the equity  
12          of use. The winter months' average method, as discussed in Mr. Ekrut's<sup>14</sup> and Mr. Rose's<sup>15</sup>  
13          testimonies, would utilize the average actual retail water used for November, December, and  
14          January for each ratepayer. This average is then used to determine the number of units to be  
15          charged per customer, per month for the remainder of the year. The winter months' average  
16          method can be used to offset the increase in outdoor water usage during the hotter summer  
17          months, and can be a more accurate representation of indoor water use and the actual water  
18          discharged by each customer. However, this method lacks a conservation encouragement for  
19          summer months as the monthly charge will remain consistent throughout the year  
20          independent of the actual water discharged.

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<sup>14</sup> Ekrut Testimony at 33 through 34.

<sup>15</sup> Rose Testimony at 16.

1  
2 **Q. What could be the impact on the MUD's retail sewer ratepayers if the sewer rate design**  
3 **was changed to "winter months' average" from sewer rates based on potable water**  
4 **consumption?**

5 As the cost of providing retail sewer service remains unchanged, including the portion that  
6 is fixed and charged through the sewer base charge, the per-unit charge will have to be  
7 increased to accommodate the reduction in per-unit charges collected via the winter months'  
8 average method. The lower-end retail water users, annually, will see a slight increase in their  
9 sewer bill due to the per-unit adjustment. The MUD residential ratepayers that are higher-  
10 end retail water users during the summer months, due to outdoor water usage such as  
11 irrigation or filling a personal pool, will see an annual decrease in their retail sewer bills  
12 following a switch to winter month averaging. The MUD residential, and commercial  
13 customers, that use more than 18,000 gallons in the winter months, will see an increase in  
14 their bill. The extent of the increase will be dependent on the average usage for the particular  
15 customer. However, the MUD's cost per ratepayer for providing retail sewer service will  
16 more accurately reflect the level of individual discharges into the sewer system. Furthermore,  
17 the assignment of cost responsibility to each customer on a monthly basis should be more  
18 accurate.

19 **Q. Is the retail sewer rate and rate design unreasonable or discriminatory?**

20 It is my opinion that the retail sewer rate is in itself not unreasonable. It recovers the  
21 appropriate cost of service from the ratepayers. However, the application of this rate design  
22 does indicate unreasonableness based on the rate differential between residential ratepayers  
23 that consume less than 18,000 gallons, residential ratepayers that consume more than 18,000  
24 gallons, and non-residential customers. The current rate differential is unsupported by a  
25 difference in the cost of service for each group, due to the similar water quality that is

1 discharged into the sewer system, and does not appropriately allocate per-unit costs between  
2 ratepayers by reflecting interior water use accurately. The annual average water consumption  
3 was approximately 18,000 gallons when the rate design went into effect; however, the winter  
4 months' average based on FY-2016 billing totals was approximately 7,225 gallons.<sup>16</sup> The  
5 difference between retail water consumption in the annual average and the winter months'  
6 average indicates heavy outdoor water usage. Therefore, it is my opinion that the rate design,  
7 as applied to the usage of the MUD, is unreasonable. As stated previously, the application of  
8 using a per-unit charge based on water consumption can be an equitable way for some  
9 utilities to allocate costs to their ratepayers. However, in the case of the MUD the per-unit  
10 charge, in conjunction with the cap for only residential customers, is not a reasonable method  
11 for allocating costs, and arbitrarily assigns customers classes, in my opinion.

12 **Q. Do you have any other concerns regarding the equity of the MUD's costs currently**  
13 **being passed on to the ratepayers?**

14 A. Yes. The rate design, as applied, assumes that a residential ratepayer rarely discharges greater  
15 than 18,000 gallons into the sewer system and that any excess of 18,000 gallons in  
16 consumption can be attributed to outside water use. As discussed above, the winter months'  
17 average of water consumption can be a more accurate representation of indoor water use and  
18 the actual water discharged by each ratepayer. When reviewing the FY-2016 actual usage  
19 during the months of December, January and February approximately 170 ratepayers out of  
20 4105 used, on average, more than 18,000 gallons per month. Although this is a small  
21 percentage of the residential users, approximately 4%, the total gallons (on average) which  
22 were not billed for sewer use is approximately 4,000,000 gallons. For example, the highest  
23 residential user had a billed usage of 109,333 gallons, which equates to a charge of \$0.0004  
24 per 1000 gallons due to the 18,000 gallon cap for residential charges. Since it is reasonable

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<sup>16</sup> Ekrut Testimony at Schedule TC-5H

1 to assume that the average winter water consumption is a more accurate reflection of sewer  
2 use than actual water consumption per month, particularly in the summer months, then it is  
3 my belief that the current rate design provides a subsidy for the residential users that exceed  
4 18,000 gallons water consumption during the winter months and furthers my belief that the  
5 rate design is unreasonable.

6 **IV. RECOMMENDATIONS**

7 **Q. Do you have a recommendation regarding the MUD's appealed rates?**

8 A. Yes. My analysis found that the rate increases for both retail water and sewer services, as  
9 adopted by the MUD, is supported based on Mr. Novak's cost of service. However, the retail  
10 sewer rate design inappropriately creates two customer classes within the MUD's ratepayers  
11 that do not have a different cost of service. In the alternative, I recommend that the MUD  
12 employ the winter months' average method. As stated previously, the application of using a  
13 per-unit charge based on water consumption can be an equitable way for some utilities to  
14 allocate costs to their ratepayers. However, in the case of the MUD the per-unit charge, in  
15 conjunction with the cap for only residential customers, is not a reasonable method for  
16 allocating costs, and arbitrarily assigns customers classes, in my opinion.

17 The table below illustrates a comparison of the current rate design and my recommended  
18 design based on winter months' average, which Mr. Ekrut also presented in his testimony.<sup>17</sup>

Base Charge for all Customers	\$15.35
Per 1,000 Gallon	\$3.75
(based on average consumption Dec/Jan/Feb)	

19 The winter month average rate design generates \$2,431,136 based on the projected number  
20 of sewer customers for FY-2016 of 4,268 and the projected volumetric billing of 439,150,000  
21 gallons for all customers. The volumetric billing estimate appears to be based upon actual  
22 average consumption of 4105 residential MUD and PID customers for FY-2016 during the

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<sup>17</sup> Ekrut Testimony at 34.

winter months, 20,195,269 and 9,464,579 gallons respectively. The total of the monthly averages for the MUD and the PID, multiplied by 12 months calculates to 355,918,176 gallons annually. The total projected volumetric billing includes the projected commercial sewer flow of 83,232,000 gallons.

**Q. Will your recommendation have any impact on customer billing?**

The impact is dependent on the individual ratepayer and winter month usage. The records<sup>18</sup> provided by the MUD showing residential average usage for the winter months had a wide range of usage from 1,333 gallons per month up to 109,333 gallons per month. However, the FY-2016 the average usage for a residential customer is approximately 7,225 gallons per month. The table below illustrates the difference in sewer charges for low, mid, and high ratepayers using the winter months average method versus the 18,000 Cap.

	3,000G	7,000G	15,000G	25,000G	30,000G
Winter Avg	26.60	41.60	71.60	109.10	127.85
18,000 Cap	23.24	33.76	54.80	62.69	62.69

The impact on residential ratepayers will be the greatest for the users who, on average, use greater than 18,000 gallons per month on average in the winter months. From the records provided, approximately 170 ratepayers out of 4,105 (total ratepayers) used, on average, more than 18,000 gallons per month.

**Q. Do you have any alternative recommendations regarding the rate design?**

In the alternative of using the winter months' average method for calculating sewer rates, the MUD should remove the 18,000 gallon cap that is applied to residential users and adjust the per-unit cost accordingly by dividing the variable cost of service (volumetric revenue) by projected annual water consumption units (\$1,646,594/ 1,031,717). The base rate would remain the same, but the volumetric charge for sewer would be reduced to \$1.60 per 1000

<sup>18</sup> Ekrut Testimony at Schedule TC-5H and Trophy Club Response to Ratepayers First Request for Information Question Nos. Ratepayer 1-1 through 1-12 (May 23, 2016 ) at 108 through 285.

1 gallons of water consumed. It is my opinion that the winter months' average method is more  
2 equitable method for calculating each ratepayer of the MUD's fraction of the cost of service  
3 for retail sewer; however, the elimination of the 18,000 gallon cap removes the unreasonable  
4 distribution of cost between the MUD's residential ratepayers that consume less than 18,000  
5 gallons, residential ratepayers that consume more than 18,000 gallons, and non-residential  
6 customers.

7 **Q. Do you have a recommendation regarding customer refunds?**

8 A. Yes. Pursuant to 16 TAC § 24.29(h), unless the parties agree otherwise, the utility must  
9 "refund or credit against future bills all sums collected in excess of the rate finally ordered  
10 plus interest as determined by the Commission in a reasonable number of monthly  
11 installments." This difference should be refunded over the number of months the proposed  
12 rates were collected, which cannot be determined until the Commission issues a final  
13 decision in this case. The MUD should also be ordered to file quarterly refund reports with  
14 the Commission's Central Records Office until all refunds have been fulfilled.

15 **IV. CONCLUSION**

16 **Q. Does this conclude your direct, pre-filed testimony?**

17 A. Yes, but I reserve the right to supplement this testimony during the course of the proceeding  
18 as new evidence is presented.



Attachment EE-1

Elisabeth English Resume

ELISABETH M. ENGLISH

PROFESSIONAL EXPERIENCE

**The Public Utility Commission of Texas, Water Utilities Division, Austin, TX**

Engineering Specialist IV

December 2014–Present

A technical expert on a broad range of water and sewer utility issues. Work primarily involves reviewing petitions of various parties to the Commission and providing analyses and recommendations regarding the sufficiency, accuracy, and technical specifications of those filings.

- Providing technical assistance and rule interpretations to the public and PUC Staff related to water and sewer utilities.
- Assisting in the creation of Staff guidance documents and administrative rulemakings.
- Preparing written testimony, technical reports, and memoranda supporting staff conclusions regarding the merits of water and sewer applications seeking relief from the Commission.

**University of Texas – Arlington, Business Development Division, Austin, TX**

Natural Resource Specialist

August 2013–November 2014

A representative for the University of Texas-Arlington working with the Texas Commission on Environmental Quality (TCEQ) in the Public Drinking Water Section specializing in rule interpretation and regulatory guidance material for the Drinking Water Quality team.

- Refined the project management of multiple drinking water quality programs to meet regulatory requirements.
- Created regulatory guidance materials and tools to assist the regulated community with compliance, including presentations and workshops.
- Performed an in-depth analysis of all drinking water quality regulations.
- Improved multiple Standard Operating Procedures to standardize workflow, increasing the efficiency of the program.

**Texas Commission of Environmental Quality, Region 12, Houston, TX**

Environmental Investigator III

March 2009–August 2012

A government agent responsible for inspecting and investigating public water systems in Houston and the 12 surrounding counties to verify compliance with the Safe Drinking Water Act (SDWA).

- Evaluated, analyzed, and summarized evidence and investigative findings into written reports related to complaints of complex public water systems. All reports were published for public record.
- Provided professional and administrative support to water consumers and investigated claims of misconduct under the jurisdiction of the TCEQ Office of Water.
- Implemented a Quality Assurance and Quality Control process for complaint investigation reports.
- Created a multi-tiered system for quality assurance for complaint investigation reports.
- Conducted yearly skill tests for a team of 12 investigators to demonstrate competence with equipment and instruments.

EDUCATION

**Texas State University, San Marcos, TX**

*Bachelor of Science, Major in Biology & Minor in English*

2003–2008

- Undergraduate Research Assistant at San Marcos National Fish Hatchery: Assisted with the execution of a research proposal under the supervision of Dr. C. Phillips (San Marcos National Fish Hatchery) and Dr. T. Bonner (Texas State University).
- Biology Computer Lab Supervisor and Tutor: Managed the operation of the Biology Computer Lab (Texas State University) including work schedules, bi-yearly reports, and supervising up to four other student assistants. Provided tutoring to biology undergraduate students.

**TRAINING & ACTIVITIES**

- Occupational Safety and Health Administration/Hazardous Materials certified (40 hours)
- National Incident Management System Emergency Response certified
- Environmental Protection Agency Sanitary Survey Training
- Participation in Texas Water Infrastructure Coordination Committee (TWICC)