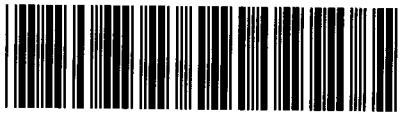

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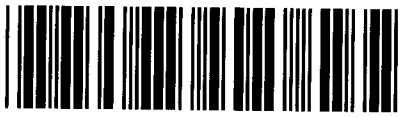

Item Number: 30

Addendum StartPage: 0

SOAH DOCKET NO. 473-16-1834.WS
PUC DOCKET NO. 45283

RATEPAYERS' APPEAL OF THE DECISION BY NORTH SAN SABA WATER SUPPLY CORPORATION TO CHANGE RATES	§	**BEFORE THE STATE OFFICE**
	§	
	§	
	§	**OF**
	§	
	§	
	§	**ADMINISTRATIVE HEARINGS**

DIRECT TESTIMONY

OF

KATHERINE GAGE

ON BEHALF OF

NORTH SAN SABA WATER SUPPLY CORPORATION

March 30, 2016

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INDEX TO THE DIRECT TESTIMONY OF

KATHERINE GAGE, WITNESS FOR

NORTH SAN SABA WATER SUPPLY CORPORATION

LIST OF EXHIBITS

DIRECT TESTIMONY OF KATHERINE GAGE

I. INTRODUCTION

Q. PLEASE STATE YOUR FULL NAME AND ADDRESS.

A. Katherine B. Gage – 7201 CR 124, San Saba, Texas 76877

Q. ON WHOSE BEHALF ARE YOU TESTIFYING IN THIS PROCEEDING?

A. I am testifying on behalf of the North San Saba Water Supply Corporation.

Q. ARE YOU EMPLOYED?

A. No, I am retired.

Q. WHAT IS YOUR RELATIONSHIP TO NSSWSC?

A. I am a Member of the North San Saba Water Supply Corporation since 1999. I am currently on the Board Directors for NSSWSC and have been since 2010. I served as President for four (4) years (2012 to 2016) and as Secretary-Treasurer for one year (2011-2012).

Q. WHAT IS YOUR PROFESSIONAL AND EDUCATIONAL BACKGROUND AND EXPERIENCE?

A. I worked in the homebuilding industry for the last 28 years of my career. I worked in many aspects of the homebuilding business including cost estimating and the bid process; contract review for land acquisition; home sales and closing documents; customer issues; sales payroll and builder bonuses; management of up to three (3) people; and interim loan process. Finally as executive secretary for an Area President who was responsible for four major housing markets, Austin, San Antonio, Denver and Phoenix. I am familiar with financial statements and other business practices. I have a high school diploma and a couple of years of college.

II. PURPOSE AND SCOPE OF TESTIMONY

Q. WHAT IS THE PURPOSE OF YOUR DIRECT TESTIMONY IN THIS PROCEEDING?

A. To explain how and why the Board of Directors of NSSWSC raised the base and water rates it charges to its Members.

Q. HAVE YOU PREPARED ANY EXHIBITS OR SCHEDULES IN CONNECTION WITH YOUR TESTIMONY?

A. Yes. I have prepared, supervised the preparation of, or co-sponsored the exhibits listed in the table of contents to my testimony.

III. DUTIES OF THE BOARD OF DIRECTORS

Q. DO THE BOARD OF DIRECTORS MEETING REGULARLY?

A. Yes, we meet on the second Tuesday of each month at 5:30 PM in the Arrowhead Bank Building Board Room.

Q. WHO NORMALLY ATTENDS THESE MEETINGS?

A. Normally only Board Members, the Operator, Will Broyles, and the Office Manager, Cindy Hibler, attend the meetings. Participation in Board Meetings by the general Members of NSSWS is usually based on the Member's dissatisfaction with something that is on the Agenda which is posted per the Open Meeting Act; or with an invoicing issue.

Q. HOW MANY MEMBERS HAVE ATTENDED THE MEETINGS?

A. Usually we only have one (1) or two (2) general Members at the meetings. NSSWSC sent a letter dated July 17, 2015 to its Members stating that Board of

Directors planned to approve a new rate at the next regular public meeting on August 11, 2015.

[NSSWSC OFFERS EXHIBIT KG-1 – NSSWSC Letter to Members, July 2015]

Nine general Members attended the August 11th meeting; we have had between six and ten general Members attend the September through December, 2015 regular Board Meetings. In 2016 there were two general Members in January, six in February and four in March. The NSSWSC's Annual Meeting on March 22, 2016 had eleven general Members in attendance.

Q. WHAT DOES SERVING ON THE BOARD OF DIRECTORS MEAN TO YOU?

A. I believe it is my duty to ensure that the NSSWSC is able to provide water to all its Members today and in the future.

IV. COMPLIANCE AND FINANCIAL ISSUES

Q. WHAT IS INVOLVED IN ENSURING WATER IS PROVIDED TO MEMBERS OF NSSWSC?

A. NSSWSC must comply with all TCEQ regulations and with the EPA Safe Drinking Water Act.

Q. HAS THIS BEEN AN ISSUE?

A. Yes. NSSWSC is a small rural water system that currently has 264 Members with a total of 297 meters. To the best of my knowledge it was started in the 1970s by a few individuals. The system has grown over the last thirty plus years with little regard to how NSSWSC could keep up with the growth and wear and tear of the system. I am aware of only two upgrades to the system that prior to 2014. Both

for replacement of transmission lines; one in approximately 2007 on County Road 124 and the other in 2012 for Highway 16 from FM 1480 to CR 111; FM 1480 to CR 110 and on FM 1480 starting .5 mile past CR 118 to Rabbit Creek. It is my understanding both were funded by grants. The County Road 124 project was not completed because the grant did not cover all the costs and NSSWSC ran out of funds.

On December 14, 2011 TCEQ did an inspection of NSSWSC system. The inspection resulted in ten violations, six of which were corrected and NSSWSC achieved compliance on March 28, 2012. NSSWSC did not have the money to correct the other violations. As a result TCEQ Assessed Administrative Penalties that required compliance and a monetary penalty of $21,079 on May 1, 2012. NSSWSC signed an agreement with TCEQ to pay the penalty and achieve compliance on the remaining four issues. The penalty was paid with a $604 initial payment followed by 35 monthly payments of $585. This penalty was paid in full in September 2015.

Sealy Engineering, who had been working for NSSWSC for several years, was aware of the violations and was working on obtaining funding through the Texas Water Development Board (TWDB) "Drinking Water State Revolving Fund." A $310,000 loan was given to NSSWSC on December 29, 2011 for planning, acquisition and design of the project. On February 28, 2013 NSSWSC was approved for additional funds from TWDB $2,168,816 loan forgiveness (grant) and $335,000 loan. These funds were not available to NSSWSC until November 2013, at which time the engineer started the bid process, and the "construction

project" started in January 2014 and completed in November 2014. The "construction project" was over budget due to change orders not approved by the Board of Directors by $113,705 as claimed by the General Contractor, Nelson Lewis, Inc. NSSWSC was able to negotiate a settlement of $100,000 with Nelson Lewis, Inc. payable with a $30,000 down payment and 36 month loan at 4% interest beginning May 1, 2015.

Q. HAS NSSWSC COMPLETED ALL THE NECESSARY IMPROVEMENTS TO THE SYSTEM?

A. No. Our "construction project" did not address all the issues that need attention. Due to the amount of money NSSWSC received in loans and loan forgiveness, NSSWSC could only correct a few of the items that need to be addressed.

Q. WHAT OTHER ITEMS NEED TO BE ADDRESSED?

A. In May 2015, we contracted with an engineering firm to determine those issues still needing to be addressed. They have provided us with a report.

[NSSWSC OFFERS EXHIBIT KG-2 – Jacob & Martin Feasibility Study]

This report shows that there are issues with the pumps at the FM 500 pump station installed during the "construction project" which NSSWSC is in the process of replacing. The Board has approved $22,500 to replace the pumps at FM500 pumping station and to also mitigate some premature wear effects and the cause of a serious cavitation problem with the new pumps at Stingy Lane pumping station.

There is an outstanding issue with TCEQ regarding elevated storage at the Shaw Bend Tower, although no violation has been written up as of now. NSSWSC

would like to make the required improvements to achieve compliance at the Shaw Bend tower before our next inspection.

There is an issue regarding the maximum contaminant levels (MCLs) for combine radium 226 and radium 228 with the Environmental Protection Agency (EPA) that was to be resolved in the "construction project" by enabling the FM 500 pump station to blend City of San Saba Water with FM 500 well water. We have had three quarterly radium samples done in 2015 all of which were over the MCLs. Therefore, NSSWSC may have to discontinue using the FM 500 well – which by itself has a very high radium level – and purchase all its water from the City of San Saba. If that becomes necessary it will mean even more expense for NSSWSC.

In the last 2 to 3 months a 6" transmission line on FM 500 and CR 111 has begun leaking and needs to be replaced.

NSSWSC has not been able to take any action on any of these outstanding projects needing immediate attention due to lack of funds.

Q. HOW DO YOU PROPOSE TO REMEDY THESE ISSUES?

A. NSSWSC is hoping to secure a $275,000 grant from the Texas Department of Agriculture for the 6" transmission line. NSSWSC would be responsible for $13,800, approximately, in order to qualify for the grant.

The Board of Directors is very aware that we cannot add any more long term debt and are working with grant writers and Jacob & Martin, our new engineers, to find additional grants. NSSWSC has to have a good financial history plus money in the bank to qualify for many of the grants.

Q. HOW HAS THE COST OF THE "CONSTRUCTION PROJECT" AFFECTED NSSWSC FINANCES?

A. NSSWS increased its long term debt (liabilities) by $715,000 in loans from the Texas Water Development Board (TWDB) and Nelson Lewis, Inc. The two TWDB loans totaling $645,000 and are financed for 30 years, with a total monthly payment for both loans of approximately $5,022 monthly or $60,264 annually. The Nelson Lewis, Inc. loan in the amount of $70,000 has a term of 3 years, with a monthly payment of $2,066.70 or $24,800 annually.

The Board Members were aware that there was a steady decline in the cash on hand, but it was not easily recognized in the financial reports. Each month the Treasurer's report is submitted as the "Profit & Loss" (report from Quick Books) the net income would fluctuate depending on the expenses for repairs, supplies or utilities. Although the net income was normally a positive number, it did not show the ***actual*** amount of cash being spent by NSSWSC. Because the loan payments only show the interest portion of the payment on the P&L expenses, the principal portion is shown as a reduction in the long term liability. The principal monthly payment averaged per month equals $4,510 in 2014, $8,379 in 2015 (due to $30,000 down payment on Nelson Lewis, Inc. loan), and is estimated to average $6,482 in 2016. Prior to incurring long term debt from TWDB and Nelson Lewis, Inc. the monthly average principal payment was $1,256. This is approximately a 41.2% increase in the principal payment only.

The increase in long term debt and its payments and the fact that NSSWSC must address the outstanding issues with TCEQ and the EPA are the reasons why NSSWSC had to raise the rates.

Q. DID THE BOARD OF DIRECTORS LOOK FOR WAYS TO REDUCE EXPENSES?

A. Yes. But the water supply system is like an old car: it keeps running, but it breaks regularly and when it does it is expensive.

Q. COULD YOU CUT EXPENSES BY LOWERING THE OPERATOR'S CONTRACT?

A. Yes, but I'm not sure we can replace our Operator with anyone that is qualified for less money. We have not had anyone send a resume or express an interest in being the Operator for NSSWSC in the last six years. It can be a very difficult job. The Operator goes when there is a problem, regardless of the weather or personal plans. Our current Operator, Will Broyles, has done an excellent job and has been more reliable and pleasant to deal with than the previous Operator. Mr. Broyles started with NSSWSC at $49,500 annually in 2010 and is now being paid $90,000 annually. Mr. Broyles is a contractor and provides all his own equipment, including a pick-up truck, trailer, trencher, excavator, hand tools, and additional help if needed, not to mention insurance on the pick-up and equipment, and liability insurance. The previous Operator was being paid approximately $92,000 when she left the system in 2010. She operated under the same conditions as our current Operator.

I am confident if the Board of Directors had a viable candidate for the Operator's position we would look seriously at the candidate.

The Board of Directors has looked at purchasing equipment and hiring at least two employees; but it not an economically feasible idea.

V. REASONABLENESS OF NEW RATES

Q. DO YOU BELIEVE THIS RATE INCREASE IS FAIR TO ALL YOUR MEMBERS?

A. Yes. I have talked to several Members and they, like me, are not thrilled with paying more for water, but they realize the cost of everything has gone up in the past few years. And they know that to continue receiving water they have to support the system.

Q. HAS ANY MEMBER SPOKEN WITH YOU OR THE BOARD OF DIRECTORS ABOUT BEING ADVERSLY AFFECTED BY THE RATE INCREASE?

A. No.

Q. HAVE YOU CONSULTED AN OUTSIDE PARTY REGARDING THE NSSWSC'S RATES?

A. Yes. I met with James Smith of the Texas Rural Water Association (TRWA) in November 2015 and asked him if TRWA had a rate calculator. He answered yes and used the TRWA "Water Revenue Requirements and Rate Design" spreadsheet to calculate the rates for NSSWSC. According to his spreadsheet and the lowest rate tier NSSWSC charges its Members, the base rate should be $88.57 per month. NSSWSC's current base rate is $82.00.

[NSSWSC OFFERS EXH. KG-3 – TRWA spreadsheet]

Q. HAS NSSWSC GIVEN ANY CONSIDERATION TO REDUCING THE RATES?

A. Yes, a motion was made in the January 2016 meeting to evaluate of the rate increase and its impact on the financials in six months.

[NSSWSC OFFERS EXH. KG-4 – NSSWSC Board minutes, Jan. 2016]

Q. DO YOU HAVE SET HOURS THAT YOU WORK FOR NSSWSC OR ARE YOU ON CALL AT ANY TIME?

A. I have no set hours. I work on projects on my own schedule. I am on call to Members, the Operator (Will Broyles), the Office Manager (Cindy Hibler,) and the Board of Directors at any time.

VI. SERVICES AND EQUIPMENT PROVIDED FOR NSSWSC

Q. DO YOU USE ANY EQUIPMENT AND/OR SUPPLIES IN YOUR WORK?

A. Yes.

Q. WHAT EQUIPMENT AND/OR SUPPLIES DO YOU USE?

A. Computer, printer, calculator and paper and ink for printer.

Q. WHO OWNS THE EQUIPMENT?

A. I do.

Q. DO YOU PROVIDE THESE TOOLS AND/OR SUPPLIES; OR DOES NSSWSC PROVIDE THEM FOR YOU?

A. I provide 98% of the supplies. I think NSSWSC has purchased 3 ink cartridges and 1 ream of paper in the last 6 years.

Q. DO YOU HAVE ANYONE WHO HELPS YOU IN YOUR WORK FOR NSSWSC?

A. Yes

Q. WHO IS THAT?

A. Will Broyles provides information about the system. Cindy Hibler provides administrative support. Board Members, especially Roger Whatley, provide insight and experience.

VII. CONCLUSION

Q. DOES THIS CONCLUDE YOUR TESTIMONY?

A. Yes.

EXH. KG-1

NORTH SAN SABA WATER SUPPLY CORPORATION
P.O. Box 598
San Saba, Texas 76877
325-372-5348

Date: July 17, 2015

Subject: Proposed Rate Increase

Dear Member,

In the time frame since our last water rates increase, over 5 years ago (December 2009), your North San Saba Water Supply Corporation (NSSWSC) Board has pursued a program of capital improvements for our water system in an effort to improve your water service reliability and quality, compliance with relevant State of Texas regulations, and overall value to our members. Approximately 35 miles of new 3 inch pipe has been laid to distribute water to members, replacing old, deteriorating and very often leaking pipes. In addition, about 8 miles of new 10 inch pipe has been laid along FM500. There has also been important facility improvements at both the Stingy Lane and FM500 stations with new pumps and automated control equipment installed, along with new water storage at both stations. Our Operator, who is normally repairing pipe leaks as soon as possible, has also replaced many older, worn, and leaky valves in the system. He has also moved meters to the nearest appropriate County Road and replaced worn out meters. Hopefully many of you as members have experienced a noticeable improvement in reliability and service as a result of these efforts and improvements.

These system improvements were financed thru a combination of loans and grants totaling about $3million. The NSSWSC now services 3 loans totaling approximately $6900 per month in loan payments. In addition, inflationary price increases on supplies and repairs, etc, to upkeep and maintain the water system are exacting a toll on our finances. In a recent accounting of our financial outlook, expenses are currently exceeding revenues by a significant margin and we have no choice but to consider a rate increase.

One additional side-note: the State of Texas is still experiencing effects of the recent drought and consequently there are very good general reasons to conserve water everywhere. A feature of the proposed new rate plan is to encourage voluntary water conservation by members.

Proposed Rate Increases:

Increase residential base rate by $12.00 to $82/mo. ($0.40 per day increase).
0 to 4,000 gallons - No Change, $2.70 per thousand gallons
4,001 to 8,000 gallons – increase from $3.38 to $5.07 per thousand gallons
8,001 to 20,000 gallons – increase from $4.05 to $7.09 per thousand gallons
20,001 plus gallons – increase from $4.73 to $9.46 per thousand gallons

EXH. KG-1

The commercial base rate will increase from $200 to $400.

Here are some example water bills calculated under the new rates for various monthly metered residential water consumptions:

Metered Water	Base Rate	0-4000 gal	4001-8000gal	8001-20,000gal	20,000 plus gal	State Tax	Monthly Bill
2,000gal	$82	$5.40				$ .44	$87.84
6,000gal	$82	$10.80	$10.14			$ .51	$103.46
10,000gal	$82	$10.80	$20.28	$14.18		$ .64	$127.90
22,000gal	$82	$10.80	$20.28	$85.08	$18.92	$ .85	$218.17
40,000gal	$82	$10.80	$20.28	$85.08	$189.20	$1.94	$389.30

The Board plans to approve a new rate plan at the next regular public meeting, August 11, 2015, Tuesday, beginning at 5:30pm in the Arrowhead Bank Conference Room. In the meantime we solicit comment and feedback from members regarding the above proposed new rates and, as always, members are welcome to attend the meeting and to speak to the Board.

Sincerely,
The Board of Directors,

Kathy Gage, President

Kim Sprouse, Vice President

Brad Everett, Secretary-Treasurer

Jim Brozo

Diane Wood

Mike Moorehead

Roger Whatley

EXH. KG-2

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Weatherford, Texas 76086
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FEASIBILITY STUDY

TO:	**North San Saba WSC Board of Directors**
FROM:	**Allen Phillips, P.E., Jacob and Martin, LLC.**
SUBJECT:	**North San Saba Water Supply Corporation Feasibility Study**
DATE:	**June 25, 2015**

INTRODUCTION

In May of 2015 Jacob and Martin, LLC. was contracted to perform a feasibility study for the North San Saba Water Supply Corporation. The study is intended to provide information on certain system elements which have been highlighted as problem areas by the Corporation as well as provide information on general system requirements and potential solutions and cost for these specific areas of concern. The items include the following:

1) Pump Hydraulics at the new Stingy Lane Pump Station.
2) Pump Capacity at the old Stingy Lane Pump Station.
3) Pump Capacity at the FM 500 Pump Station.
4) Disinfection needs and procedures at the Stingy Lane Pump Station.
5) Examine and discuss Elevated Storage Requirements.

During preliminary discussions with the corporation it was decided that the WSC desired to keep this study at a feasibility level. No computer based hydraulic modeling or detailed system analysis was desired for this study.

GENERAL

The North San Saba Water Supply Corporation (WSC) is a rural water supply which serves 297 customers in San Saba County north of the City of San Saba. The system is split into two pressure planes and serves approximately 127 customers in pressure plane one and 170 customers in pressure plane two. North San Saba WSC is a groundwater system and is supplied by both WSC wells and purchased groundwater from the City of San Saba. The system has two wells which feed pressure plane one only. Pressure plane two is supplied by purchased groundwater through an interconnect with the City of San Saba. Recently, the WSC has constructed a pump station to transfer purchased water from the City of San Saba in pressure plane two and blend it with well water in pressure plane one in order to reduce radium levels in the well water. A system map is included as attachment A in this study.

EXH. KG-2

General system requirements for the North San Saba WSC are set forth by the Texas Commission on Environmental Quality (TCEQ) in Chapter 290 of the Texas Administrative Code. Specifically, the guidance which outlines these requirements is located in Subchapter D Rule, 290.45, "Minimum Water System Capacity Requirements." A table has been included below which outlines the applicable requirements for this study. Section 290.45 of the rules have also been included in the attachments.

Table 1 – Summary of General System Requirements

SYSTEM COMPONENT	REQUIREMENT
Well Capacity	0.6 gpm/connection
Interconnection Supply Capacity (San Saba)	0.6 gpm/connection
Total storage capacity	200 gallons/connection
Pumping capacity	2 gpm/connection*
Elevated storage capacity	100 gallons per connection
Elevated storage capacity (if pressure tank)	20 gallons per connection

**** Pumping Capacity may be reduced to 0.6 gpm/ connection if 200 gallons per connection of elevated storage is provided***

Typically, these requirements are examined individually for each pressure plane. However, in this case the actual well capacity and purchased water interconnect capacity can be examined system wide. The system has 250 gpm of purchased supply from San Saba and approximately 57 gpm of well supply. Based on a total connection count of 297, the entire system requires 179 gpm of supply capacity. This can be met with the purchased water alone. However, NSSWSC does not have well capacity to operate pressure plane one with only well water. The 57 gpm well capacity is not sufficient to satisfy the TCEQ required capacity of 76 gpm in pressure plane one.

Table 2 – NSSWSC System Requirements by Pressure Plane

Pressure Plane #1		
	REQUIRED	**PROVIDED**
Meters		127
Transfer Capacity (New Stingy Lane Pump Station)	76.2 gpm	150 gpm
Total storage capacity	25,400	44,000
Pumping capacity*	**254**	**160**
Elevated storage capacity	12,700	--
Elevated storage capacity (if pressure tank)	2,540	4,000
Pressure Plane #2		
	REQUIRED	**PROVIDED**
Meters		170
Total storage capacity	34,000	50,000
Pumping capacity*	**340**	**260**
Elevated storage capacity*	**17,000**	**7,600**
Elevated storage capacity (if pressure tank)	---	---

*Minimum Not Met with Equipment Provided

EXH. KG-2

NEW STINGY LANE PUMP STATION

The new Stingy Lane Pump Station was constructed in 2013 and consists of 24,000 gallons of ground storage with two 150 gpm pumps. This pump station was installed in order to pump purchased water through a dedicated 10 inch line to the FM 500 pump station in pressure plane one in order to blend well and purchased water at the FM 500 pump station.

Pumps

The pumps which are currently installed at the New Stingy Lane Pump Station are 25 HP pumps, sized at 150 gpm and 250 feet of Total Dynamic Head. These pumps are PACO Vertical, In Line pumps. According to NSSWSC personnel, these pumps have been turned off and the station has been out of service due to excessive cavitation occurring when the pumps are operating. It is suspected that these pumps are operating significantly outside of their design point.

Due to the fact that the New Stingy Lane Pump Station is a transfer station and pumps only to another ground storage tank, computer hydraulic models are not required to verify the design point for the pump. Therefore, calculations were rerun on this pump and a 150 gpm pump was found to require only 165 feet of Total Dynamic Head thus confirming that the pumps were operating at the far end of the curve. The pump curve with the original design point and actual operating point is included.

In order to remedy this situation the pump must either be replaced or the current configuration modified in some way to force the pump to operate back at the original design point. Several solutions exist for this problem and are outlined below.

A) Replace Pumps- The current 25 HP pumps could be replaced with a smaller pump which would operate at the lower head range. Based on a search of PACO pump curves as well as conversations with vendors, a 10 HP Vertical In Line pump could be used. Lowering the horsepower could save the WSC energy cost, however the capital cost to replace the pumps would be between $20,000 and $30,000.

B) Change Current Pump Impeller –This option includes using the existing pumps but having a pump contractor change the impellers which would allow the pump to reduce its operating point and power requirement. The current pumps have an 8.30 inch impeller. If a 7.50 inch impeller was installed as shown on the pump curve in the attachments the pump could run much closer to the center of the curve or Best Operating Point. Due to the horse power reduction this would reduce electricity cost and be a more cost effective option. This project is expected to run between $5,000 and $8,000.

C) Install an Orifice Plate- This option consist of leaving the existing pump as is and utilizing an orifice plate on the discharge side of the pump to create a false head in order to push the operating point back to its original design. The orifice plate would consist of a plate which would fit between two flanges with a small hole in this center. The constriction created by the hole would cause an increase in head and thus create the operating point desired. While the least expensive option, this option does not save the district any energy cost due to the fact that the pump will operate at the original 25 HP. The plate would also have to be changed periodically due to wear. Cost for this option could run between $500 and $1,000.

It is recommended that with either solution B or C that the pump vendor be retained to examine and service the existing pumps. The cavitation could have caused damage to the pump seals, rings, and shaft which would need to be addressed. This item is not included within the cost above.

Valves

Cla-Val 81-02 Check Valves were used downstream of the pumps in order to prevent backflow through the pumps. Unfortunately, these valves appear to be not operating as intended and allowing water to flow back through the pumps. The valves are operated on a pressure differential with the higher head on the pump side opening the valve and then when the pump turns off, the higher head downstream of the valve closes the valve. In a site visit, NSSWSC personnel discussed that Flowtech, a valve service company had been called to the site to examine the valves. According, to Ryan Agnew, Flowtech representative, the valves have a bronze seat. This bronze seat has been known to deteriorate very quickly, sometimes within a year of service. Due to the extremely high flow rates at the New Stingy Lane pump station due to the operating point issue, it is thought that this seat has worn, creating areas for water to penetrate the seat and force the valve open when it is supposed to be closed.

The solution to this problem is to repair the valves by replacing the worn bronze seats with new stainless steel seats. Other components such as the diaphragms and discs in the valves would also be replaced due to the wear from the seat damage. A Cla-Val Technical Sheet which shows a disassembled view of the valve is included in the attachments. A quote was submitted by Flowtech to repair both valves at the New Stingy Lane Pump Station as well as the FM 500 pump station which is also experiencing the same problem with its valves. The quote is included in the attachments and is $4,292.00.

OLD STINGY LANE PUMP STATION

The Old Stingy Lane Pump Station was constructed in 1991 and consists of a 50,000 gallon ground storage tank as well as two 130 gpm pumps. This pump station serves the 170 customers in pressure plane number 2 and pumps to distribution as well as filling the Shaw Bend Standpipe. As shown in Table two, based on the required 2 gpm per connection of pumping capacity the pump station only has 260 gpm of combined capacity and should have 340 gpm of capacity. These pumps need to be upsized in order to meet the minimum system requirements. In order to size the head requirements for this pump more extensive hydraulic modeling must be done due to the downstream configuration of the distribution system. Therefore, it is recommended that further design be conducted in order to find the proper replacement pump for this site. It is estimated that the cost for the construction alone for this project would be approximately $30,000 to $40,000. This does not include engineering for the pump replacement.

FM 500 PUMP STATION

The New FM 500 Pump Station was constructed in 2013 and consists of a 20,000 gallon ground storage tank as well as two 86 gpm pumps, and a 4,000 gallon pressure tank. This pump station serves the 127 customers in pressure plane number one and pumps to distribution. As shown in Table two, based on the required 2 gpm per connection of pumping capacity the pump station only has 160 gpm of combined capacity and should have 254 gpm of capacity. These pumps need to be upsized in order to meet the minimum system requirements. The current 10 HP pump may have to be upsized to a 15 HP pump which

would increase operating cost slightly. It is estimated that the construction cost for this project would be approximately $20,000 to $30,000. This does not include engineering for the pump replacement.

DISENFECTION NEEDS AND PROCEDURES AT THE STINGY LANE PUMP STATIONS

During a preliminary site visit the NSSWSC personnel expressed that the system was experiencing low disinfection residuals in the outermost parts of pressure plane number two. Currently, the system is allowing the residual sent from the City of San Saba to carry throughout the system without additional boosting.

In order to provide a slight boost to the chlorine residual a liquid bleach system could be installed at the Old Stingy Lane Pump Station. The advantage to utilizing liquid bleach instead of chlorine gas include safety for operators as well as less regulatory requirements. In order to add a liquid bleach system at the pump station a 75 gallon drum of chemical as well as a spill containment pallet would have to be positioned inside the pump station. A small metering pump and calibration cylinder would be mounted near the bottom of the tank. An injection point would have to be installed preferably on the incoming fill line to the ground storage tank. This would allow the chemical to adequately mix prior to being sent into distribution. The construction of this system is expected to run between $2,000 to $4,000.

ELEVATED STORAGE REQUIREMENTS

The TCEQ rules require each pressure plane to have a minimum of 100 gallons of elevated storage per pressure plane. The rules allow for this requirement to be met by a pressure tank which provides up to 20 gallons of storage for each connection. Based on Table 2, the 4,000 gallon pressure tank in pressure plane number one is more than adequate for the current 127 customers.

Pressure plane number two only has 7,600 gallons of elevated storage, which comes from the 76,000 gallon Shaw Bend Standpipe. The reason for this is that the elevated storage volume in a pressure plane is calculated 80 feet (35 psi) above the highest meter in that pressure plane. Based on information from NSSWSC personnel as well as examination of google aerial photography, there is a customer located directly adjacent to the standpipe at roughly the same ground elevation. The Shaw Bend Standpipe is 88.5 feet to the overflow which only allows for 8.5' of elevated volume 80 feet above the highest meter. The approximate elevation of the standpipe and this residence is 1360.

According to NSSWSC personnel the highest meters in pressure plane 2 are located along CR 124 east of the standpipe on a single 3 inch line. If these meters were removed the highest meter in pressure plane two would be at elevation 1310. If this were the highest meter on the system the Shaw Bend Standpipe would have approximately 49,489 amount of elevated storage. See Table 3 below.

Table 3 – Pressure Plane 2 Elevated Storage with Highest Meter at 1310

		Volume Provided
Ground Elevation at Standpipe	1360	
Highest Meter Elevation	1310	
80' above highest Meter Elevation	1390	
Top of Standpipe	1448.5	
Distance Eligible as Elevated Storage	58.5	49,489 gallons

This would be more than enough elevated storage volume for the requirements of pressure plane 2. The volume provided at 49,489 gallons would be approximately 291 gallons per meter which would allow the pumps at the Old Stingy Lane Pump Station to have a 0.6 gpm per connection requirement. If the highest meter at 1360 could be removed these pumps would comply based on the 200 gallons per connection of elevated storage.

One way to accomplish this would be to provide a separate pressure plane number three for the 22 meters along the three inch line along CR 124 east of the standpipe. A pressurization system consisting of a pressure tank and pumping system sized to accommodate these meters could be added in the yard of the standpipe. Construction cost for this project are expected to be between $25,000 and $35,000.

CONCLUSIONS AND RECOMMENDATIONS

In conclusion, while, the NSSWSC is out of compliance in several areas there are options to bring the system into compliance. It is recommended to follow through with the Flowtech valve repair and stainless steel seat installation as soon as possible. It is also recommended to pursue the option of impeller replacement for the Stingy Lane pump station.

Other than, the impeller and valve modifications it is recommended that all projects be engineered and submitted to TCEQ for approval prior to installation. We would be happy to assist the Corporation with these projects. We appreciate the opportunity to work with the North San Saba WSC in the generation of this feasibility report.

Respectfully Submitted,

James A. Phillips, P.E.

Jacob and Martin, LLC.

ATTACHMENTS

A) SYSTEM MAP
B) 30 TAC 290.45 GENERAL CAPACITY REQUIREMENTS FOR WATER SYSTEMS
C) NEW STINGY LANE PUMP CURVE
D) FLOWTECH QUOTE
E) CLA-VAL TECHNICAL SHEET

EXH. KG-3

WATER REVENUE REQUIREMENT & RATE DESIGN

UTILITY

REVENUE REQUIREMENT

BUDGET/COST OF SERVICE ITEM	Item Cost	%	Fixed	%	Variable
SALARIES	16,590	80	13,272	20	3,318
CONTRACT LABOR	66,000	80	52,800	20	13,200
CHEMICALS AND TREATMENT	0	60	0	40	0
UTILITIES	29,096	50	14,548	50	14,548
REPAIRS AND MAINTENANCE	30,051	50	15,026	50	15,026
OFFICE EXPENSES	10,260	20	2,052	80	8,208
ACCOUNTING & LEGAL	4,680	50	2,340	50	2,340
HEALTH INSURANCE	0	50	0	50	0
OFFICE SUPPLIES	0	45	0	55	0
TANK REPAIRS	0	50	0	50	0
BAD DEBT	0	50	0	50	0
PAYROLL TAXES		50	0	50	0
TELEPHONE	0	40	0	60	0
TRUCK & EQUIP. EXPENSE	0	100	0	0	0
TRAVEL & ENTERTAINMENT	0	50	0	50	0
EQUIPMENT RENTAL	0	50	0	50	0
INSURANCE - WC & LIABILITY	5,914	70	4,140	30	1,774
LICENSE & DUES	5,467	50	2,734	50	2,734
POSTAGE & FREIGHT	2,316	50	1,158	50	1,158
ADVERTISING	0	30	0	70	0
SAMPLING	0	50	0	50	0
EDUCATION	0	50	0	50	0
DEPRECIATION	10,484	60	6,290	40	4,194
MATERIALS & SUPPLIES	0	50	0	50	0
SECURITY	0	50	0	50	0
MISCELLANEOUS	534	50	267	50	267
LONG TERM DEBT	10,332	100	10,332	0	0
WATER PURCHASED	61,475	100	61,475	0	0
SYSTEM DEPRECIATION	128,504	70	89,953	30	38,551
TCEQ FINE	7,020	50	3,510	50	3,510
	0	50	0	50	0
	0	50	0	50	0
SUB-TOTAL (LESS FIT & RETURN)	388,723		279,896	100	108,827
% OF TOTAL (FIXED + VARIABLE)		63		37	
PRINC & INTEREST - WATER	0		0.00		0.00
MAINTENANCE RESERVE*	0		0.00		0.00
LESS OTHER REVENUE	$0		0.00		0.00
TOTAL	$388,723		$279,896		$108,827

EXH. KG-3

RATE CALCULATION

GALLONAGE CHARGE

				PROPOSED RATE
Variable Cost/Test Year Gallons/1,000 ==========>	4.02 /TH.GAL.		USE ->	**$2.70 /TH.GAL.**
	|/			|/
MINIMUM BILL	|			|
Fixed Cost/12/Customer Equivalents ==========>	78.53 /MO.		YIELDS ->	**$88.57 /MO.**
	78 53 /MO. incl. min. gallons			**88.57 /MO.**
				inc. min. gall
Avg. Test-Yr Customer Equivalents =	297			
Gallons Included In Minimum Bill =	**0**			
Test Year Gallons Billed (x 1,000) =	**27,057**			

REVENUES GENERATED:

Connection Size	# of Connections	Min. Bill	Minimum Bill Including Gals	Rev./Month	Rev./Year
5/8", 3/4"	297	$88.57	$88.57	$26,306	$315,669
3/4"	0	$132.86	$ 132.86	$0	$0
1"	0	$ 221.43	$ 221.43	$0	$0
1-1/2"	0	$ 442.86	$ 442.86	$0	$0
2"	0	$ 708.57	$ 708.57	$0	$0
2-1/2"	0	$ 708.57	$ 708.57	$0	$0
3"	0	$ 885.72	$ 885.72	$0	$0
4"	0	$ 2,214.29	$ 2,214.29	$0	$0
6"	0	$ 4,428.58	$ 4,428.58	$0	$0
		TOTAL MINIMUM CHARGES=>			$315,669
GALLONAGE CHARGES=>		27,057 @		$2.70 /1,000 GAL	73,054
	TOTAL REVENUE GENERATED=>				$388,723
	Printed on:	time			

NOTES:

EXH. KG-4

North San Saba Water Supply Corporation
Directors Meeting
January 12, 2016
5:30 p.m.
Arrowhead Bank Board Room

The Board of Directors of the North San Saba Water Supply Corporation met in a Director's Meeting, Tuesday, December 8, 2015 at the Arrowhead Bank Board Room.

Director's Present:
Kathy gage
Kim Sprouse
Brad Everett
Roger Whatley
Jim Brozo
Dianne Wood

Meeting called to order by Kathy Gage at 5:30 p.m.

Kim Sprouse read the Minutes from the last meeting. Motion was made by Roger Whatley to approve, seconded by Kim Sprouse. Motion passed.

Kathy Gage read the Treasurer's Report. Motion was made by Kim Sprouse to approve, seconded by Diane Wood. Motion passed.

Roger Whatley commented that Evaluation of the rate increase required no action at this time. He suggested reviewing in 6 months. The impact of the rate increase with financials there is not enough money for expenses so there was a rate increase. It is hard to know how the demand will be affected. Motion was made by Roger Whatley to review and evaluate at the end of June and compare 2015 to 2014. Trudy Gage said that the water system must be kept in tack. Milton Gage said that he agreed it would be a good idea to wait 6 months to re-evaluate. Jim Brozo seconded the motion. Motion passed.

Jim Brozo made the comment that at the age of 65 taxes were frozen. We may want to consider freezing the rate at age 65. Roger Whatley commented that nothing could be done about that tonight. He also stated that for the benefit of those that were not here for the rate increase- we did consider the impact it would have on some of our members. There are Texas State Agency programs for those having trouble paying their utility bills.

Motion was made by Kim Sprouse to approve and pay the bills, seconded by Diane Wood. Motion passed.

Roger Whatley addressed some of the concerns raised about NSSWSC expenses. Right now we pay $400.00 per month for rent. A total of $4800.00 per year. Office space at Arrowhead Bank would be $3000.00 per year but then we would have to buy a printer, copier, desk, chairs,

file cabinets, a full time employee at $21,000.00 per year, benefits at $3000.00 per year. Net proposal – savings -$8864.00 – estimate. Barbara Horn stated that we buy our own equipment we wouldn't have to pay rent for them. Bill Hardy stated a 3 year lease.

Kathy Gage mentioned the NSSWSC indebtedness. Roger Whatley stated Will Broyles compensation not CPA – 2 engineer Degrees, Master Business Degree from U.T. Licensed Operator. It was mentioned that Richland Springs pays $50,000.00 per year for their operator. Bill Hardy was asked if that was right and he replied yes. Will's expenses are $40 - $46, 000. Will's contractor business now takes home about $45,000.00 - less than the Richland Springs operator. If we change Will to an employee it would be an $8,000 - $18,000 per year increase on our expenses.

Trudy Gage mentioned with the old operator, members were out of water a lot of times for hours and hours.

Roger Whatley stated 80% more water than billing, today approx. 20%. 97,000 – not billing, fines $30,000 TCEQ. $92,000 – 2010 - $ CPI – Consumer Price Index todays dollar 18.7% inflation so $92,000 from 2010 is $109,250 now.

Trudy Gage stated that we can't keep good help if we don't pay them.. Roger stated doesn't feel unqualified to do this. Milton Gage stated the Board was doing an excellent job tackling/ solving problems. He felt that the rate increase would not bankrupt anyone. He also felt the operator was doing an excellent job. Would hate to see Will leave his job. Trudy Gage stated the Will can't work for nothing.

Barbara Horn asked about work ethic or quality.
Linda Kelly answered lots of questions.
Bob Hardy asked about the water smelling.
Linda Kelly suggested that anyone could get a water filtration system that takes out Radium – cost $1500 - $2000.

Roger Whatley mentioned 3 problems

1. Cavitation – pumps wearing themselves out
2. New pumps – Engineered – 2 options – one is more expensive than the other
3. Shaw Bend elevated storage – TCEQ

Restrictor plate – fabricated, bored holes 1.15" hole - bolt $60.00 for $340.00 cost of other plate.

Motion was made by Roger Whatley to adjourn, seconded by Diane Wood.

Meeting adjourned at 6:51 p.m.

STATE OF TEXAS §
§
COUNTY OF SAN SABA §

AFFIDAVIT OF KATHERINE GAGE

BEFORE ME, the undersigned authority, on this day personally appeared Katherine Gage, who, having been placed under oath by me, did depose as follows:

1. "My name is Katherine Gage. I am of sound mind and capable of making this affidavit. The facts stated herein are true and correct based upon my personal knowledge.

2. The foregoing direct testimony and the attached exhibits have been prepared by me, under my direct supervision, or are co-sponsored by me and are true and correct to the best of my knowledge."

Further affiant sayeth not.

Katherine Gage

SUBSCRIBED AND SWORN TO BEFORE ME by the said Katherine Gage this 30th day of March 2016.

LEARY M. PIERCE
My Notary ID # 130394303
Expires October 5, 2019

Leary M. Pierce
Notary Public, State of Texas
My Commission Expires: October 05, 2019