

BEFORE THE ARIZONA CORPORATION COMMISSION

COMMISSIONERS

TOM FORESE, Chairman  
BOB BURNS  
ANDY TOBIN  
BOYD DUNN  
JUSTIN OLSON

IN THE MATTER OF THE APPLICATION  
OF EPCOR WATER ARIZONA INC. FOR A  
DETERMINATION OF THE CURRENT  
FAIR VALUE OF ITS UTILITY PLANT AND  
PROPERTY AND FOR  
INCREASES/DECREASES IN ITS RATES  
AND CHARGES BASED THEREON FOR  
UTILITY SERVICE BY ITS AGUA FRIA,  
ANTHEM, CHAPARRAL, HAVASU,  
MOHAVE, NORTH MOHAVE, PARADISE  
VALLEY, SUN CITY, SUN CITY WEST,  
TUBAC, AND WILLOW VALLEY WATER  
DISTRICTS AND FOR CONSIDERATION  
OF CONSOLIDATION PROPOSALS

DOCKET NO: WS-01303A-17-0257

**REBUTTAL TESTIMONY  
OF  
FRANK METZLER  
ON BEHALF OF  
EPCOR WATER ARIZONA INC.  
APRIL 9, 2018**

**DIRECT TESTIMONY  
OF  
FRANK METZLER  
ON BEHALF OF  
EPCOR WATER ARIZONA INC.**

**APRIL 9, 2018**

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1           **EXECUTIVE SUMMARY**

2           Mr. Frank Metzler provides further support for post-test year plant (“PTYP”) in  
3 the Agua Fria, Sun City and Sun City West Water Districts (which comprise the Central  
4 Division that Mr. Metzler is responsible for). Mr. Metzler describes specific reasons why  
5 certain projects should be included as PTYP in rate base including the following:

- 6           • Verrado Zone Project (No. 1001195);
- 7           • Corte Bella Tank Expansion Project (No. 1002755);
- 8           • Waterline Construction WP8 to Zanjero (No. 1002070);
- 9           • WP100 Bp2 Repair Project (No. 1003161);
- 10          • WPS 9/10 Chlorination Study (No. 1003316);
- 11          • Plant & Well Rancho Cabrillo Project (No. 1003575);
- 12          • NaOCL GEN CELL REPL Project (No. 1005321);
- 13          • Agua Fria Operations Center (No. 1004222);
- 14          • Truck Replacement (No. 1001894);
- 15          • SC3 VAUL METER RELOC Project (No. 1001283);
- 16          • Engineering Studies for all three districts (Nos. 1002259, 1003724,  
17             1002260, 1003674, 1002267, and 1003699); and
- 18          • Replacement Meters throughout all three districts (Nos. 1002113, 1002110,  
19             1002112);

20 Mr. Metzler describes that the actual costs for these projects (provided to Commission  
21 Staff and other parties in February 2018) are now known and measurable, and how actual  
22 costs for several other projects were also provided at that time. Mr. Metzler justifies  
23 including the PTYP up to one year after the end of the test year, and how these projects  
24 are to serve those existing customers. In short, Mr. Metzler provides justification for a  
25 series of PTYP projects that have been denied or not addressed by Commission Staff  
26 and/or RUCO but should be included in rate base.

1 **I. INTRODUCTION AND QUALIFICATIONS**

2 **Q. PLEASE STATE YOUR NAME, BUSINESS ADDRESS AND TELEPHONE**  
3 **NUMBER.**

4 A. My name is Frank Metzler. My business address is 15626 N. Del Webb Blvd., Sun  
5 City, Arizona 85351, and my business phone is (623) 445-2439.

6 **Q. ARE YOU THE SAME FRANK METZLER WHO PROVIDED DIRECT**  
7 **TESTIMONY IN THIS MATTER?**

8 A. Yes.

9 **II. PURPOSE OF TESTIMONY**

10 **Q. PLEASE DESCRIBE THE PURPOSE OF YOUR TESTIMONY.**

11 A. My Rebuttal Testimony mainly focuses on providing further support for the post-  
12 test year plant (“PTYP”) placed into service by December 31, 2017, for the Agua  
13 Fria, Sun City and Sun City West Water Districts, which is 12 months after the  
14 end of the test year.

15 **III. POST-TEST YEAR PLANT – GENERAL COMMENTS.**

16 **Q. DO YOU HAVE ANY GENERAL COMMENTS REGARDING THE POST-**  
17 **TEST YEAR PLANT PLACED IN SERVICE DURING 2017?**

18 A. Yes. These projects were started in 2016 or 2017 and are specifically for the  
19 purpose of ensuring safe and reliable water service to our existing customers. As  
20 the Director of Operations for the Central Division of EPCOR Water Arizona Inc.  
21 (“EWAZ” or “Company”), I can attest that the projects I am going to detail in my  
22 Rebuttal Testimony enable the Company to maintain the safe and reliable service  
23 our customers and regulators expect. From an operational perspective, these

1 projects were necessary as they each directly relate to providing service to our  
2 existing customers. I will detail several of these projects and how they are  
3 necessary capital investments to replace aging infrastructure that posed a risk to  
4 ensuring continuous safe and reliable service. I will focus on the Central Division  
5 (Agua Fria, Sun City, and Sun City West service areas) while Mr. Jeffrey W.  
6 Stuck will focus on projects within EWAZ's Eastern Division (systems within the  
7 Anthem, Chaparral, Havasu, Mohave, North Mohave, Paradise Valley, Tubac and  
8 Willow Valley service areas) in his Rebuttal Testimony.

9 **Q. WHAT IS YOUR UNDERSTANDING OF THE POSITION OF**  
10 **COMMISSION STAFF AND THE RESIDENTIAL UTILITY CONSUMER**  
11 **OFFICE ("RUCO") REGARDING POST-TEST YEAR PLANT?**

12 A. My understanding is that Commission Staff has recommended inclusion in rate  
13 base for some of Company's actual post-test year plant through December 31,  
14 2017. Commission Staff has excluded certain completed projects because  
15 Commission Staff believed those projects were intended to serve growth, or  
16 because Commission Staff believed they were not in service, and used and useful,  
17 by December 31, 2017. Contrary to Staff's position, many of the excluded  
18 projects are, in fact, necessary to serve existing customers and were in service by  
19 December 31, 2017.

20 Regarding RUCO's position, RUCO removed all PTYP that was not in service by  
21 its six-month cut-off period (i.e., June 30, 2017). Although RUCO is concerned  
22 about not straying too far from a test year end for inclusion of PTYP, these  
23 projects (many of which were started during the test year or soon thereafter) are  
24 providing service to those customers who were customers during the test year. In

1 other words, six months is not a realistic cutoff given that these projects directly  
2 benefit the operation of the systems and are necessary to serve existing customers.  
3 This is particularly true given the time it takes to process a rate case application.  
4 Mr. Jon P. Boizelle addresses the accounting and ratemaking aspects of why this  
5 PTYP is appropriate to include in rates in his Rebuttal Testimony; but I want to  
6 reiterate that the PTYP placed in service between July and December of 2017 is  
7 for maintaining and improving service to our existing customers. Keep in mind  
8 that the Company continues to invest in additional projects to serve existing  
9 customers in 2018, but the Company is not seeking to include those as part of the  
10 PTYP request in this case.

11 **Q. ARE THE COSTS FOR THE PROJECTS THAT YOU DISCUSS IN YOUR**  
12 **REBUTTAL TESTIMONY NOW ACTUAL COSTS VERSUS ESTIMATES?**

13 A. Yes. Now that the projects are completed, the Company has updated its request  
14 with actual costs. In fact, the Company provided those updates to Commission  
15 Staff in response to a data request in February 2018.<sup>1</sup> Commission Staff requested  
16 detailed information regarding the Company's requested PTYP to understand the  
17 purpose of each project and why the investment was required. The Company  
18 provided not only the cost for each project, but also the purpose and the month that  
19 the project was placed in service among other information. The Company  
20 understands that no party had substantial time between February and when their  
21 direct testimonies were due to fully review that information; but once Commission  
22 Staff and RUCO have had an opportunity to fully review the PTYP information  
23 provided in response to Commission Staff's data request FMS 15.1 and to review

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<sup>1</sup> Staff Data Request No. FMS 15.1 served February 2, 2018.

1 the Company's Rebuttal Testimony, the parties will have the information  
2 necessary to support inclusion of the PTYP requested by the Company. Mr.  
3 Boizelle provides additional testimony on the information provided in response to  
4 FMS 15.1. Each individual project, as well as the final costs, is described below  
5 for ease of reference.

6 **Q. BEFORE PROCEEDING TO SYSTEM-SPECIFIC PROJECTS,**  
7 **COMMISSION STAFF APPEARS TO EXCLUDE ENGINEERING**  
8 **STUDIES FOR SEVERAL OF THE CENTRAL DIVISION WATER**  
9 **SYSTEMS. DO YOU BELIEVE THOSE STUDIES SHOULD BE**  
10 **INCLUDED AS PART OF PTYP?**

11 A. Yes. Based on my review of both the information the Company provided and the  
12 Commission Staff's Direct Testimony, it appears the following studies were  
13 excluded:

- 14 • Project No. 1002259 – Agua Fria Engineering (2016) - \$77,347.
- 15 • Project No. 1003724 – Agua Fria Water Engineering (2017) – \$45,671.
- 16 • Project No. 1002260 – Sun City Engineering (2016) - \$43,883.
- 17 • Project No. 1003674 – Sun City Engineering (2017) - \$49,096.
- 18 • Project No. 1002267 – Sun City West Water Engineering (2016) - \$9,554.
- 19 • Project No. 1003699 – Sun City West Engineering (2017) - \$10,052.

20 All of these studies are necessary to ensure that the Company is installing or  
21 replacing the correct infrastructure cost-effectively to maintain and/or improve  
22 service to existing customer. Without these studies, the Company would not have  
23 the information needed to determine what projects should proceed. In addition,  
24 Mr. Boizelle explains in his Rebuttal Testimony that the studies are appropriately

1 capitalized and not treated as an operating expense. Accordingly, these studies are  
2 part of prudent investment necessary for safe and reliable service to existing  
3 customers.

4 **1 AGUA FRIA WATER.**

5 **Q. PLEASE EXPLAIN THE NEED FOR THE VERRADO ZONE PROJECT**  
6 **(PROJECT NO. 1001195 - \$10,460,000).**

7 A. This was a substantial project that started in March of 2014 and was not completed  
8 until August 2017. The project (also referred to as “Agua Fria Water Plant 15”)   
9 involved installation of 14,300 linear feet (LF) of a 24-inch water main, and a  
10 booster pump station with a capacity of 4,700 gallons-per minute (gpm). The  
11 purpose of the project is to provide fire flow and necessary redundancy in Verrado  
12 Pressure Zone 3, which consists of the eastern portion of the existing Verrado  
13 community north of Western Drive and east of North Verrado Way.

14 **Q. WHEN YOU REFER TO “REDUNDANCY” IN THIS CONTEXT, DOES**  
15 **THAT ESSENTIALLY MEAN THE PROJECT IMPROVES RELIABILITY**  
16 **BY PROVIDING ADDITIONAL INFRASTRUCTURE TO ENSURE**  
17 **SERVICE?**

18 A. Yes. From an operational perspective, to the maximum extent practicable,  
19 customers should never experience a disruption of service caused by the failure of  
20 an individual stretch of pipeline, a booster pump, a well or some other critical  
21 piece of equipment. The Company must assume that equipment will fail during  
22 the highest periods of summer demand, usually in the middle of the night. This is  
23 why we aim to build looped water systems and have redundant equipment at our  
24 water plants all serving the same function. Agua Fria Water Plant 15 provided us



1 with the ability to push enough water up the hill into the Verrado community – so  
2 that if Agua Fria Water Plant 9 experiences a critical failure, we can now maintain  
3 continuous water service to all of those customers in Verrado.

4 **Q. WHY DID IT TAKE THREE-PLUS YEARS TO COMPLETE?**

5 A. Three years to construct a plant of this size is not unreasonable given the  
6 challenges encountered. In addition to typical timeframes associated with siting,  
7 engineering design and construction, we experienced major delays caused by local  
8 resistance to the initially proposed plant location which ultimately required us to  
9 relocate the plant several hundred feet farther north and redesign the water lines  
10 leading in and out of the plant. There were challenges in terms of de-conflicting  
11 the alignment and construction of the new water line in relation to significant  
12 earthwork and blasting in bedrock being performed along the route by other  
13 entities outside our control. Finally, the amount of electricity required to run the  
14 plant required close coordination with Arizona Public Service Company (“APS”)  
15 and necessitated APS’s installation of higher capacity electrical lines running to  
16 the plant site from the south.

17 **Q. DID COMMISSION STAFF EXCLUDE THE ENTIRE PROJECT FROM**  
18 **PTYP?**

19 A. No. It appears Commission Staff removed about \$3,790,997 of this project from  
20 PTYP from the originally requested amount of \$11,149,990.

21 **Q. DO YOU KNOW WHY COMMISSION STAFF REMOVED THAT**  
22 **AMOUNT FROM PTYP FOR THIS PROJECT?**

1 A. I believe Commission Staff removed one-third of the project cost from the original  
2 request because Commission Staff believes that one-third of the project was to  
3 address future growth and future customers. In his engineering report, Mr. Smaila  
4 indicates that the revised figure is based on an email from the Company on  
5 February 20, 2018. In that email, however, the Company explained that, although  
6 the line will also be used to serve future customers, it was needed for redundancy  
7 as described above. Although the Company is not certain as to how Staff reached  
8 the one-third reduction, because the installed line was a 24-inch line and the prior  
9 line was a 16-inch line, it is possible that Mr. Smaila determined that the Company  
10 should only recover for costs related to a 16 inch line (*i.e.*, 2/3 of the 24-inch line  
11 installed). This is not an accurate calculation, however, because only a limited  
12 portion of the total cost is tied to the additional size of the line. Rather, the  
13 difference in size has no material impact on the size of trench, amount of backfill,  
14 or the amount of asphalt, and therefore, the costs of these items would not change.

15 **Q. AND THE COMPANY HAS REVISED ITS ORIGINALLY REQUESTED**  
16 **AMOUNT, CORRECT?**

17 A. Yes. As part of the Company's rebuttal position, the Company has revised its  
18 request for this item to \$10,460,000 to reflect the different in cost tied directly to  
19 the size of the line, which the Company estimates at approximately \$690,000.  
20 Although it would be imprudent to install a 16-inch line now and incur the  
21 additional cost to replace it with a 24-inch line in the future, the Company has  
22 made this revision in an attempt to reduce the number of issues in dispute.

23 **Q. WHAT WAS THE PURPOSE FOR PROJECT NO. 1002755 – THE 2016**  
24 **CORTE BELLA TANK SITE EXPANSION PROJECT?**

1 A. The purpose for this project was to ensure adequate on-site treated water storage  
2 capacity at the Agua Fria Water Plant 100 (“AF 100”) to provide continuous water  
3 service for all of the customers in the Northeast Agua Fria water service area, in  
4 the event of an emergency like a production well failure. The project scope  
5 included installation of a second 1.25 million-gallon (MG) reservoir as well as  
6 ancillary piping, other necessary plant modifications, and rehabilitation of the  
7 original 1.25 MG storage tank. The total cost for the project was \$2,689,415.

8 **Q. DID STAFF EXCLUDE PART OF THIS PROJECT FROM PTYP?**

9 A. Yes. Staff appeared to exclude about \$1,862,205 from PTYP. I believe Staff’s  
10 rationale for excluding certain costs was that it felt there was not sufficient  
11 existing demand in the system to justify an additional 1.25 MG tank but that an  
12 additional tank with a smaller capacity would be justified. However, as with the  
13 Verrado Zone 3 project, the Company is not sure how Commission Staff came to  
14 exclude all but \$827,210 of the project. All of the new 1.25-MG reservoir is in  
15 service and is used and useful. It should also be noted AF 100 is currently the *only*  
16 water storage plant for the entire Northeast Agua Fria water service area. If there  
17 is a critical failure at AF 100, EWAZ has very limited capability to move  
18 additional water into the district from Sun City West, particularly in the peak  
19 summer demand months.

20 **Q. WHY DOES THE COMPANY BELIEVE THAT A SECOND 1.25 MG**  
21 **STORAGE TANK IN SERVICE IS NECESSARY?**

22 A. There are three primary reasons behind the Company’s rationale for placing a  
23 second 1.25 MG tank in service at AF 100 in 2017:

- 1           1) Standard practice for water operators in the water utility industry is that a water  
2           system should have sufficient storage capacity to achieve a daily tank turnover  
3           ratio of 1.25 or less. In other words, in a given day you don't want to see the  
4           system storage move a volume of water greater than 125% of its total storage  
5           capacity. AF 100 crossed this threshold in early 2015 when it went from a  
6           turnover ratio of 1.24 at the start of the year to 1.45 at year's end. By the end  
7           of 2016 the turnover ratio had increased to 1.65. Thus, the decision was made  
8           in 2015 to budget for and build a second storage tank and the project was  
9           started in 2016 and completed in 2017 as PTYP.
- 10          2) The American Water Works Association ("AWWA") has developed a general  
11          framework and recommendations for finished water storage tank inspection  
12          programs. This framework states that tanks should undergo periodic  
13          comprehensive inspections once every five years, up to a maximum of every  
14          eight to ten years (if site-specific conditions warrant). Because we only had  
15          one storage tank at AF 100, which was placed in service 13 years prior, we had  
16          never been able to drain and inspect the tank until the new tank was placed into  
17          service. When we were finally able to inspect the original tank in 2017, we  
18          found that it was in need of significant rehabilitation, including installing a  
19          new steel floor and substrate, due to severe corrosion and loss of metal, as well  
20          as repairs to the rafters and the central dollar plate. If we had not been able to  
21          inspect the original tank, we may have experienced significant water loss from  
22          the bottom of the tank and been unable to repair it without causing service  
23          disruptions to our customers.

1           3) EWAZ acknowledges that when the new tank at AF100 was brought online in  
2           2017, there was not a total system demand requiring 2.5 MG of total storage.  
3           However, the original design of AF 100 specified two mirror image 1.25 MG  
4           tanks on the site. EWAZ could build a smaller-sized tank specific to meet  
5           projected system storage requirements at the end of 2017 or 2018; but within a  
6           few years it would be necessary to demolish that smaller tank and then build a  
7           larger tank to meet the required system capacity at that time. This series of  
8           incrementally replacing small-sized tanks would be necessary until the  
9           required system storage capacity reached 2.5 MG. Obviously, building and  
10          demolishing a series of ever increasing capacity tanks with the goal of timing it  
11          “just right” would be a waste of ratepayer dollars and a tremendous amount of  
12          wasted effort. The demand trends we observed in NEAF showed a 15%  
13          increase in demand for 2015 over 2014, and a 13% increase in system demand  
14          in 2016 over 2015. Based on this growth trend and the previously noted  
15          system turnover ratio, it was our best professional judgement that the time was  
16          right to build the second 1.25 MG tank before total system demand far  
17          exceeded our desired system redundancy, and to ensure uninterrupted service  
18          to our customers. For all of these reasons, I believe all of this plant should be  
19          included as PTYP.

20 **Q.    WHAT ABOUT PROJECT NO. 1002070 – CONSTRUCTION OF A**  
21 **WATERLINE FROM WATER PLANT (WP) 8 TO ZANJERO?**

22 **A.**    Commission Staff appears to have excluded all of this from PTYP. We believe  
23          that part of this project should be included at PTYP because it addresses water  
24          adequacy and reliability issues to current customers. This project involved  
25          construction of 2.5 miles of a 12- or 16-inch water main between Sweetwater

1 Avenue & Citrus Road, and Desert Cove Avenue and Perryville Road, in order to  
2 improve regional water distribution efficiency and resolve water pressure issues at  
3 the existing Shadow Ridge High School on the corner of Perryville Road and  
4 Peoria Avenue. The high school was receiving water from Agua Fria Water Plant  
5 14 (“AF 14”). The school is approximately 80 feet higher in elevation than AF14  
6 and due to the elevation difference the school experienced low water pressures and  
7 had recurring malfunctions with their irrigation sprinklers. EWAZ determined  
8 that a more efficient way to serve the school is by using Agua Fria Water Plant 5,  
9 which is at the same elevation as the school.

10 **Q. WOULD AN 8-INCH LINE HAVE RESOLVED THE ISSUES YOU**  
11 **IDENTIFY WITH THE SCHOOL?**

12 A. An 8-inch waterline could have been extended southward on Citrus Road from  
13 Sweetwater Avenue to Cactus Road, then westward to Perryville Road and  
14 southward to the school. This 8-inch line would have resolved the low water  
15 pressure issues with the school. However, to plan for both future water needs, as  
16 well as ongoing residential developments in the area around the school, the 8-inch  
17 line was upsized to a 16-inch line to Perryville Road, and upsized to a 12-inch line  
18 southward to the school. Not only did this resolve the low water pressure issues  
19 for the school, it also increased operating efficiency within the water system by  
20 decreasing the amount of water that needs to be pumped uphill. In other words,  
21 this project improved service adequacy and reliability to existing customers but  
22 was upsized to prepare for current and future growth. It was not built simply to  
23 service future customers in Agua Fria. Therefore, a portion of the total project  
24 cost minus the cost difference of the upsized pipe (approximately \$400,000)

1 should be included in PTYP (requesting \$1,507,533 total). The project was  
2 completed in December 2017, about 17 months after it began.

3 **Q. PLEASE EXPLAIN THE WP100 BOOSTER PUMP 2 (“BP2”) REPAIR**  
4 **PROJECT (PROJECT NO. 1003161 - \$25,014).**

5 A. That project was started in September 2016 and completed in January 2017. The  
6 purpose was to remove and replace the stuffing box (an assembly used to prevent  
7 leakage) for a 125-horsepower (HP) retrofit to a mechanical seal on Booster Pump  
8 2 (“BP2”) at AF 100. BP2 was in service and this project was a rehabilitation of  
9 existing plant. It is, in short, necessary rehabilitation to extend the useful service  
10 life of the pump.

11 **Q. COMMISSION STAFF EFFECTIVELY DISALLOWED \$21,428 FOR**  
12 **PROJECT NO. 1003316 – WPS 9/10 CHLORINATION STUDY. DO YOU**  
13 **BELIEVE THAT PROJECT SHOULD BE INCLUDED IN PTYP?**

14 A. Yes. The purpose of the chlorination study was to evaluate options to address  
15 recurring maintenance issues associated with the aged chlorination equipment at  
16 Agua Fria Water Plants 9 and 10. That study recommended reconfiguration of the  
17 chlorine disinfection systems to improve reliability, reduce recurring maintenance  
18 and operating costs, and improve employee and site safety. The study was  
19 completed by July 2017.

20 **Q. WAS IT A SUCCESSFUL STUDY IN TERMS OF PROVIDING THE**  
21 **COMPANY THE MOST COST-EFFECTIVE MEANS TO RESOLVE**  
22 **THOSE ISSUES?**

1 A. Yes. The study led to us replace the old ChlorTainer system with updated chlorine  
2 emergency shutoff valves that are easier to inspect, less expensive to maintain, and  
3 safer to operate, and the equipment is consistent with our chlorination safety  
4 practices throughout the Central Division.

5 **Q. DID THE COMPANY ALSO INSTALL NEW REPLACEMENT METERS**  
6 **FROM JANUARY 2016 THROUGH JANUARY 2017?**

7 A. Yes. These new meters were installed to replace old meters for existing customers  
8 that had become stuck or damaged and were no longer correctly measuring  
9 customer usage. These meter installations were all part of one project (Project No.  
10 1002113) at a total cost of \$39,702.

11 **Q. PLEASE DESCRIBE THE NEED FOR THE PLANT & WELL RANCHO**  
12 **CABRILLO PROJECT (PROJECT NO. 1003575 - \$57,159).**

13 A. This project was a master plan engineering study for the Northeast Agua Fria  
14 water service area to determine the timing for installation of necessary additional  
15 production, storage, and distribution facilities, as well as to identify options to  
16 potentially mitigate the lack of system redundancy in water supply to the northern  
17 portion of the district. The study took place from January through December  
18 2017. Similar to the engineering studies I detailed earlier in my testimony, this  
19 study assisted us in determining how to install necessary infrastructure in the most  
20 cost-effective and timely manner based on observed and projected growth within  
21 Northeast Agua Fria. Here in particular, the timing of installation of facilities is  
22 very important to maximize their utility to the system which in turn allows us to  
23 ultimately best serve the customer. In short, studies like these add significant  
24 value toward providing safe and reliable service.



1 **Q. WHAT ABOUT THE “NaOCL GEN CELL REPL” PROJECT (PROJECT**  
2 **NO. 1005321)?**

3 A. That project involved ordering a replacement cell for the CT75 Chlorotec System at  
4 WP100 to generate sodium hypochlorite which is used to disinfect potable water,  
5 for approximately \$16,242. That was performed in November / December of  
6 2017.

7 **Q. FINALLY, THERE IS THE NEW AGUA FRIA OPERATIONS CENTER**  
8 **(PROJECT NO. 1004222 - \$3,917,669). PLEASE DESCRIBE THIS**  
9 **PROJECT.**

10 A. This is a project that the Company is particularly proud of. In December 2017, the  
11 Company completed construction of a new 11,000 square-foot operations facility  
12 on a 2.6-acre site in the City of El Mirage. The Agua Fria Operations Center  
13 (“AFOC”) provides Company employees with much needed space for our water  
14 operators, utility workers, field service representatives, maintenance workers,  
15 construction inspectors and water quality specialists serving our customers in the  
16 Agua Fria District. The AFOC allowed us to move our employees and their  
17 vehicles, tools and equipment closer to the center of customer mass, thus reducing  
18 daily drive times in both directions as well as shortening response times during  
19 outages or emergencies. The operations center was completed and employees  
20 moved into the new facility in December 2017.

21 **Q. WHY WAS THE NEW OPERATIONS CENTER NECESSARY?**

22 A. Mr. Andrew D. Brown detailed why this facility was necessary in his pre-filed  
23 Direct Testimony, but I will summarize the need here. The existing Sun City  
24 office and Sun City maintenance facility were at the point where there was

1 insufficient space for existing employees, let alone any new employees to support  
2 our expanding service territories and customer base. The Youngtown facility lease  
3 expired in February 2018. The AFOC was necessary to consolidate operations  
4 staff maintaining Agua Fria and surrounding water service areas to one centralized  
5 location within our largest service area – as well as at a location that places  
6 employees closer to where they will need to be to perform the daily operations and  
7 maintenance tasks. In short, the operations center was a necessary step to  
8 centrally locate employees in its largest service area.

9 **Q. IS THE COST FOR THE OPERATIONS CENTER PART OF AGUA FRIA**  
10 **PTYP VERSUS ARIZONA CORPORATE PLANT?**

11 A. Yes.

12 **Q. WILL THE COMPANY ALSO MAKE AN ADJUSTMENT TO REFLECT**  
13 **THAT THE OPERATIONS CENTER IS SHARED BETWEEN WATER**  
14 **AND WASTEWATER?**

15 A. Yes. Mr. Boizelle will discuss that in his Rebuttal Testimony, but both water and  
16 wastewater employees use this facility.

17 **Q. IN ADDITION TO THE NINE PROJECTS YOU SPECIFICALLY**  
18 **DESCRIBED ABOVE FOR AGUA FRIA, THERE ALSO APPEAR TO BE**  
19 **DOZENS OF PROJECTS COMMENCED AND COMPLETED IN 2017**  
20 **THAT STAFF EXCLUDED FROM POST-TEST YEAR PLANT. WHAT IS**  
21 **YOUR RESPONSE?**

1 A. I believe these projects were excluded because the actual cost was not provided  
2 until February 2018. These projects are consistent with other projects accepted by  
3 Commission Staff, and I believe that Commission Staff will agree to include these  
4 projects in PTYP for the reasons I provide earlier in my rebuttal testimony.  
5 Please see Exhibit FM-1REB to my Rebuttal Testimony for the full list of Agua  
6 Fria PTYP projects including those we believe were specifically excluded by  
7 Commission Staff.

8 **Q. WHAT WAS THE TOTAL AMOUNT OF PTYP THAT STAFF AND RUCO**  
9 **EXCLUDED FROM AGUA FRIA?**

10 A. The total amount Staff effectively disallowed for Agua Fria (including the  
11 engineering studies) is approximately \$15,085,358; RUCO disallowed  
12 \$26,586,627.

13 **2 SUN CITY.**

14 **Q. WHY DID THE COMPANY REPLACE A TRUCK IN JANUARY 2017**  
15 **(PROJECT NO. 1001894 - \$44,511)?**

16 A. The truck that was replaced was a 2006 Chevrolet Silverado that had been in use  
17 for almost 12 years. Replacing that vehicle at this time was necessary so that  
18 employees would have a reliable vehicle to travel to different locations to perform  
19 the daily needed activities to operate and maintain the water systems within the  
20 Sun City service area.

21 **Q. WHAT WAS THE PURPOSE BEHIND PROJECT NO. 1001283 – THE**  
22 **“SC3 VAUL METER RELOC” PROJECT FOR (\$25,556)?**

1 A. Simply put, we performed this project to reduce the risk of injury to our  
2 employees. Employee safety is a top priority at EWAZ and one of the hazards we  
3 are always seeking to mitigate is having employees working in confined spaces.  
4 We saw an opportunity to reduce that risk to our employees with this particular  
5 project – by raising a large water meter to above ground to eliminate confined  
6 spaces. This project also involved moving an adjacent fire hydrant and putting it  
7 in a better protected situation from local traffic. Any opportunity to reduce the  
8 risk to our employees in a cost-effective manner such as this project is an  
9 opportunity worth pursuing. This project was near the intersection of 113<sup>th</sup>  
10 Avenue and West Wisconsin Avenue in Youngtown. We started this project in  
11 October 2015 and completed it in January 2017.

12 **Q. WAS THERE ALSO A NEED TO INSTALL NEW REPLACEMENT**  
13 **METERS IN THE SUN CITY SERVICE AREA STARTING IN JANUARY**  
14 **2016 THROUGH JANUARY 2017 (PROJECT NO. 1002110 - \$10,737)?**

15 A. Yes. Meter replacements are a typical blanket project undertaken to replace stuck  
16 and damaged meters as they are found for existing customers. This type of  
17 blanket project is a separate project beginning in January of each year. This  
18 replacement of stuck and damaged meter replacements was completed by  
19 December 2016 after commencing in January 2016. Costs remained in  
20 Construction Work in Progress (“CWIP”) at the end of the test year but the  
21 projects were in service at the end of the test year.

22 **Q. IN ADDITION, ARE THERE ALSO SEVERAL PROJECTS**  
23 **COMMENCED AND COMPLETED IN 2017 THAT COMMISSION STAFF**

1           **EXCLUDED FROM POST-TEST YEAR PLANT WHERE THE ACTUAL**  
2           **COSTS HAVE NOW BEEN PROVIDED?**

3 A.     Yes, I believe those projects were excluded because the actual numbers were not  
4     provided until February 2018, and Commission Staff has not completed reviewing  
5     those costs. These projects are consistent with other projects accepted by  
6     Commission Staff, and I believe that Staff will agree to include those projects in  
7     PTYP for the reasons I provided earlier in my Rebuttal Testimony. Please see  
8     Exhibit FM-2REB to my rebuttal testimony for the full list of Sun City PTYP  
9     projects including those we believe were specifically excluded by Commission  
10    Staff.

11 **Q.     WHAT WAS THE TOTAL AMOUNT OF PTYP THAT COMMISSION**  
12 **STAFF AND RUCO EXCLUDED FROM SUN CITY?**

13 A.     The total amount Commission Staff effectively disallowed for Sun City (including  
14     the engineering studies) is approximately \$1,712,390. RUCO disallowed  
15     \$4,152,004 of PTYP in Sun City.

16           **3    SUN CITY WEST.**

17 **Q.     WHAT IS THE ONE PROJECT YOU WOULD LIKE TO SPECIFICALLY**  
18 **POINT OUT FOR SUN CITY WEST?**

19 A.     Project No. 1002112 involved installing new replacement meters in Sun City West  
20     at a total actual cost of \$1,175. As with the Sun City meter installations, this  
21     project involved replacing meters for test-year customers starting in January 2016  
22     and finishing in December 2016. Similar to the Sun City 2016 meter replacement  
23     project, costs remained in CWIP at the end of the test year but the projects were  
24     already in service by then.

1 **Q. OTHERWISE, IS THERE THE SAME ISSUE IN SUN CITY WEST WITH**  
2 **SEVERAL PTYP PROJECTS STARTED AND COMPLETED IN 2017**  
3 **WHERE THE ACTUAL COSTS WERE PROVIDED IN FEBRUARY OF**  
4 **THIS YEAR?**

5 A. Yes, that is correct. We believe that once those costs are reviewed, those projects  
6 will be accepted as appropriate PTYP. Exhibit FM-3REB attached to my Rebuttal  
7 Testimony details the full list of Sun City West PTYP projects including those we  
8 believe were specifically excluded by Commission Staff.

9 **Q. WHAT WAS THE TOTAL AMOUNT OF PTYP THAT COMMISSION**  
10 **STAFF AND RUCO EXCLUDED FROM SUN CITY WEST?**

11 A. The total amount Commission Staff effectively disallowed for Sun City West  
12 (including the engineering studies) is approximately \$334,525. RUCO disallowed  
13 \$1,053,337 of PTYP.

14 **Q. DOES THIS CONCLUDE YOUR REBUTTAL TESTIMONY?**

15 A. Yes.

Exhibits

Frank Metzler

# Exhibit FMS -1REB



AGUA FRIA WATER POST TEST YEAR PLANT - REBUTTAL										
Item No.	Project No.	REVISED PROJECT #	Project Name/Description	Reason for Project & What is Project Replacing? Provide existing hp, length, diameter, material, etc.	Date Construction Began	Date Construction is Used and Useful	Post Test Year Plant Additions	After Construction, Costs Transferred to which NARC Accounts No's	Rebuttal Update	
1	<b>2016 Projects Listed</b>									
2	1001941		16 Valves replaced 7F	Valves replaced. Replaced 21 broken and failing distribution system valves of various types and sizes throughout Agua Fria District. Typically the valves replaced were original equipment.	Jan-16	Jan-17	\$ 83,047	331001	83,047	
3	1002259		16 7F AF w Eng Studies	Engineering Planning Studies associated with the Agua Fria Water System	Jan-16	Jan-17	\$ 77,347	339600	77,347	
4	1001939		16 Meters replaced 7F	Meters replaced. Replaced 816 broken, stuck and damaged water meters of various sizes throughout the Agua Fria District as they were discovered or reported.	Dec-15	Jan-17	\$ 66,823	334100	66,823	
5	1001937		16 Hydrants replaced 7F	Hydrants - Replacement. Replaced 6 damaged or broken fire hydrants of various types and ages throughout the Agua Fria District as they are found during routine hydrant maintenance or when reported to us. This would include hydrants struck and damaged by drunk drivers. Replacing a hydrant costs about \$8,000 per unit including labor.	Jan-16	Jan-17	\$ 49,514	335000	49,514	
6	1001940		16 Services replaced 7F	Services replaced. Replaced 10 leaking water services of various sizes throughout the Agua Fria District as they were found or reported. Typically the services replaced were original equipment and were replaced with copper. Replacing a service costs about \$2,000 per copper service including labor.	Jan-16	Jan-17	\$ 20,978	333000	20,978	
7	1003376		16 Plant Startup Logic	White Tanks Plant Startup Logic, allow the plant to recover sooner from a power loss/start-up, provide operations better oversight to where the interlocks exist that prevent plant recovery	Nov-16	Feb-17	\$ 17,937	340300	17,937	
8	1002539		16 WT SCADA Power Outage	Restartup Programming of the WTWTP plant by SCADA for faster startup recovery once utility power is restored in case of power outage incident	Mar-16	Dec-17	\$ 26,191	346100	26,191	
9	1001938		16 Main Breaks 7F	Main Breaks Repaired 2 main breaks, requiring approximately 20 feet of C-900 plastic 8" pipe.	Jan-16	Jan-17	\$ 6,596	331001	6,596	
10	1001117		Citrus Road Waterline CV-379009	Citrus Road waterline & easement	Jan-13	Jan-17	\$ 6,297	334100	6,297	
11	1002686		16 AFWP3 BPS Pump Repair	Goulds DWT, 14RJLO, SN: FR418340-2L labor to tear-down, inspect, sandblast, provide report, modify stuffing box for new mechanical seal, fabricate new steady bearing, rebuild, coat impeller and entire pump, balance impellers, install seal flush line & steady bearing to motor for shaft/seal support. Includes crane services- Remove and repair booster pump 8 at Agua Fria water plant 3	Apr-16	Feb-17	\$ 871	304400	871	
12	1002277		16 White Tanks Server Upgrade	Program and install new control hardware at Agua Fria Plant 2 Budget from 1002018 SCADA 7E. Replace obsolete hardware (PLC, OIT, radios, power supplies), improve radio communications and standardize to GE radio, Allen Bradley PLC & OIT	Jan-16	Jan-17	\$ (7,624)	340200	-7,624	
13	1001195		AF w - Verrado Zone CV-479016	Installation of 14,300 LF of 24-in water main and a 4,700 gpm booster pump station to provide fire flow and necessary redundancy in Verrado Zone SN	Mar-14	Aug-17	\$ 11,149,990	311200	10,460,000	
14	1002069		Verrado WP16 4N BPS (Ph. 3)	Construction of a 3,700 gpm booster pump station to provide service to existing customers in Verrado Zone 4N including fire flow and to reduce demand on and provide redundancy on the existing Zone 4S BPS at WP10	May-16	Dec-17	\$ 4,968,811	311200	4,968,811	
15	1002755		2016 Corte Bella Tank Site Exp	Installation of second 1.2MG reservoir to address storage shortages in the NE Agua Fria service area	May-16	Sep-17	\$ 2,689,415	330000	2,689,415	
16	1002070		Waterline fr WP 8 to Zanjero	Construction of 2.5 miles of 12-16 in water main between Sweetwater & Citrus and Desert Cove and Perryville to improve regional water distribution	Jul-16	Dec-17	\$ 1,907,533	331300	1,507,533	
17	1002541		Northern Ave WMR 2016	Installation of 5,600 LF of new 6-in water main along Northern between Citrus and Cotton to replace existing main with a high occurrence of breaks	Mar-16	Sep-17	\$ 764,587	304400	764,587	
18	1001201		WT ATIS Modifications CV-479033	Replacement of the Automatic Transfer Switch at the White Tanks Water Treatment Plant to eliminate process interruptions during transfer back to commercial power after a power outage	Oct-14	May-17	\$ 328,553	310000	328,553	
19	1003459		AF Well 4.7 Repair	Remove and replace Motor, Cable, Column Pipe and Check Valve. Rebuild the Pump, Brush and Video the well. Hitachi 250 HP Submersible Motor, 500 MCM Submersible Pump Cable, 8" Flowmatic Check Valve. Rebuild Goulds 12CHC 10 Stage Sub-removal and replace faulty pump and motor at AF 4.7.	Dec-16	Jan-17	\$ 166,475	307000	166,475	
20	1003774		WT RawWater20Pump Conversion	Upgrade seal to mechanical type and bearings to Vespel for stability and dry run conditions at White Tanks Facility: Flow Pump Model: Z7-FKH, VTI, Single stage, 10 MGD. // This pump had historically had to be removed for service for clogged bearings, this would cause a need for bearing replacement and machine work. The pump was retrofitted with non-clogging veins. Pump has had no issues and has not needed to be pulled since upgrade.	Dec-16	Jan-17	\$ 44,659	311200	44,659	
21	1003773		AF WP9 Emergency Shutoff Valve	Emergency Installation of gas shutoff valves for 150 lb. chlorine cylinders at AF 9. Install includes SCADA programming for new shutoff valves. -Install emergency shutoff valves at Agua Fria Water Plant 2	Dec-16	May-17	\$ 29,688	331001	29,688	
22	1003775		AF WP10 ReplaceDayTank	Replace the leaking 150 gallon Sodium Hypochlorite tank and raise the chemical pumps from ground level to 3' at Agua Fria Water Plant 10	Dec-16	Jan-17	\$ 37,928	330200	37,928	
23	1003161		AF WP100 BP2 Repair	Remove and replace stuffing box for 125 HP retrofit to mechanical seal at Agua Fria WP100 BP2	Sep-16	Jan-17	\$ 25,014	311200	25,014	
24	1003316		AF WPs 9/10 Chlorination Study	Evaluation of options to address maintenance and safety issues associated with the ChlorTainers at WP 9 and 14	Oct-16	Jul-17	\$ 21,428	304400	21,428	
25	1003336		7F Radios for SCADA	Replacement communication radios for Agua Fria Radios for the SCADA Department-radios needing to be replaced due to burn out of existing units	Oct-16	Mar-17	\$ 12,795	346100	12,795	
26	1003156		WT Front Gate Repair	Repair and reinforce existing front security gate at the White Tanks facility: Hy Security, Model: HRG 222-B ST // Reinforced main gate supports because gate was not operating properly, this was based on gate repair technician recommendations. Decision was made to repair gate rather than replace the entire gate.	Sep-16	Jan-17	\$ 6,625	320100	6,625	
27	1003503		AF WP100 Gate Operator	Furnish and install new automatic gate operator, power conduit for gate operator Furnish and install (2) conduits for future card readers Furnish and install (2) keyed switches for opening the gate. Install cold patch asphalt in roadway Install concrete in areas that it was removed Core (3) holes in the wall by the electrical room and (1) hole by the main gate Trench and backfill from electrical room to gate-Installation of new gate operator and associated equipment at Agua Fria Water Plant #5	Nov-16	Jan-17	\$ 5,616	304500	5,616	
28	1003158		PerryvillePRV Pilot Remote Mon	Installed new equipment to remotely monitor PRV at Perryville from a web-based program. This program is to ensure water flow and pressure to the person is not experiencing any problems.	Sep-16	Jan-17	\$ 3,536	334300	3,536	
29	1003176		AF WP300 Coupling Guard Improv	Resound Orange Peel Guards,(3) Orange Peel Guards,#40 size, field fit (6) guards for the shaft area (2 per pump). Pumps did not have proper safety guards in place around the rotating areas. Install Orange Peel safety coupling guards on all booster pumps at AF water plant 300	Oct-16	Jan-17	\$ 3,257	311200	3,257	
30	1003155		WT Sulfuric Tank Probe Replacement	SIEMENS C1S300 CAPACITANCE LEVEL SWITCH P/N 7ML5650-SNE00-0HA0-Z+Y01 - old probe had worn out allowing acid to get to internals of probe causing incorrect level readings in day tanks. - Replace the out of service sulfuric tank probe at the White Tanks facility	Sep-16	Jan-17	\$ 1,555	304300	1,555	
31	1003154		WT Line Reactor Replacement	Replace undersized electrical line at the White Tanks Facility on the VFD as required to fix noise problem. Electrical Transformer/ Replaced unit because it was undersized and making loud noises	Sep-16	Sep-17	\$ 718	320100	718	

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32	1003062		WT Intake Water Level Monitor	Add additional monitoring to capture more accurate flow reading at the White Tanks facility. Controller: SIEMENS HYDRO-RANGER 200 CONTROLLER, 4 BUTTON HMI KEYPAD, WALL MOUNT, 100 TO 230VAC INPUT POWER. Transducer: SIEMENS XPS10 TRANSDUCER, 1 INCH NPT PROCESS CONNECTION, MEASURING DISTANCE TO 10 METERS, 30 METERS OF CABLE//The level gauge was installed in a channel that did not previously have a level gauge. The Gauge is used to remotely monitor levels in the incoming flow channel.	Sep-16	Nov-16	\$ 93	320100	93
33	1003157		WT Drying Bed Waste Valves	Replace the existing drying bed isolation valves at the White Tanks facility: PEGLEFLC12R/CR33060P/CS-6-1HDWPEG; Style: DeZURIK, Eccentric Plug Valve, Rectangular Port 6 Size - 6 Inch (150mm); (Standard Port), Stainless Steel Bearings, Welded-In Nickel Seat (Except Rubber Lined or Stainless Steel Bodies) F1: End Connection - Flanged, Drilled to ASME Class 125/150 C1: Body Material - Cast Iron, ASTM A126, Class B; (5"-12" Pressure Rating 175 psi (1210 kPa); (14" & larger Pressure Rating 150 psi (1030 kPa) NBR Packing - 5" - 5" Acrylonitrile-Butadiene Reinforced filler in a PTFE U-rings 4" & Larger Acrylonitrile-Butadiene Reinforced Multiple V-Ring with External Adjustment, 20 to 250° F. (-29 to 121° C.)//The Valves were originally installed wrong and it caused the valve to seize up. The operators had to use a bar to operate them. There were some inherent safety risk associated with leveraging that much pressure on such a small valve.	Sep-16	Jan-17	\$ (245)	320100	-245
34	1002362		Plant 2 Automation CV-579504	579504 SCADA Agua Fria Plant 2 Automation Upgrade. Purchase, program, and install new Allen Bradley PLC hardware to replace obsolete hardware and update to new	Oct-15	Jan-17	\$ (629)	304400	-629
35	1002113		16 Meters new 7F	New Meter Installations	Jan-16	Jan-17	\$ 39,702	334100	39,702
36									
37			2017 Projects Listed						
38	1003611	1004042	AF WP100 BP5 Repair	Goulds 14 R1MG, 2 Stage Pump, SN: FR470577-1, pump had excessive wear in the line shaft bearing areas and damage to the bowl shafting and line shafting. This caused the impellers to require replacement. Repair booster pump 3 at Agua Fria Water Plant 100	Feb-17	Oct-17	\$ 24,498	311200	24,498
39	1003611	1004424	AF WP10 Generator Repairs	Replace coolant hoses, thermostat and gaskets, fuel lines, and replace engine drive belts. Coolant and fuel leaks due to old rubber hoses, this is the emergency power for the plant and plant cannot go down. -Make generator cooling system and fuel system repairs per quote on the generators located at Agua Fria Water Plant 10	Apr-17	Oct-17	\$ 2,108	310000	2,108
40	1003611	1004818	17 SCADA Plant14 PLC Upgr	Reprogramming PLC and OIT code for plant and wells to meet EPCOR's automation standards, increasing ease of troubleshooting and allowing future conversion from GE serial to GE Ethernet radios for higher communication throughput.	Jun-17	Sep-17	\$ 14,620	307000	14,620
41	1003611	1004846	AF Well 2.1 Meter Replacement	Install replacement Endress Hauser Promag L 400, 5L4C2F, DN250 10" Model No: 5L4C2F-46K2/0-Replace the broken 10" meter at Agua Fria Well 2.1	Jun-17	Oct-17	\$ 2,932	311200	2,932
42	1003611	1004898	AF WP3 BP5 Motor Repair	ITI-AC Horizontal Split Case Centrifugal Pump M/N 8100, Size 10 X 8 X 17S, S/N QEG036-01 Rated 2000 GPM/227 TDH, 15.7" Impeller Diameter-Unit has vibration and bearing noise, remove upper case, inspect impeller and case for damage and wear	Jul-17	Oct-17	\$ 2,500	304100	2,500
43	1003735		17 Plant & Well Rancho Cabrillo	Master plan study for the NE Agua Fria service area to determine timing for installation of necessary production, storage, and distribution facilities and to identify options to address the lack of redundancy in water supply to the NE Agua Fria service area	Jan-17	Dec-17	\$ 57,159	307000	57,159
44	1003606		17 Meters 7F	Blanket Project for Meters Installed 2,882 new AMR meters in Agua Fria District. Replaced a wide variety of existing aged, damaged and stuck water meters as part of the meter replacement program. New meters have AMR programming allowing them to be read remotely, reducing time spent reading meters, and providing more data for customers on usage patterns and finding leaks. This is a pilot program which may be expanded depending on results.	Jan-17	Dec-17	\$ 1,017,745	334100	1,017,745
45	1005081		17 Do Not Use - Svcs new 7F	This project is created to transfer charges from 1003888, in order to capitalize. This project was previously capitalized "by Project", but since CIAC has been received, it now needs to be capitalized "by Task", which is impossible to change now.	Sep-17	Dec-17	\$ (285,360)	334100	-285,360
46	1003732		Waddell Haciendas Waterline Loop	Installation of ~560 LF of water main in Waddell Road between 180th Ave and Citrus to eliminate dead-end mains to provide looping to the distribution system in that area	Jan-17	Dec-17	\$ 115,506	304400	115,506
47	1003724		7F AF Water Eng Studies	Engineering Planning Studies in support of Agua Fria water system	Jan-17	Dec-17	\$ 45,671	304400	45,671
48	1003605		17 Main Breaks 7F	Blanket Project for Main Breaks. Agua Fria experienced 9 emergency water main breaks ranging in sizes from 6 - 16" in diameter.	Jan-17	Dec-17	\$ 196,117	331001	196,117
49	1003608		17 Valves - Replacement 7F	Blanket Project for Valve Replacement. Valves replaced. Replaced 33 broken and failing distribution system valves of various types and sizes throughout Agua Fria District. Typically the valves replaced were original equipment. Replacing a valve costs about \$4,000 per valve including labor.	Jan-17	Dec-17	\$ 199,523	331001	199,523
50	1003607		17 Services - Replacement 7F	Blanket Project for Service Replacement. Replaced 37 leaking water services of various sizes throughout the Agua Fria District as they were found or reported. Typically the services replaced were original equipment and were replaced with copper. Replacing a service costs about \$2,000 per copper service including labor.	Jan-17	Dec-17	\$ 75,371	333000	75,371
51	1003604		17 Hydrants - Replacement 7F	Blanket Project for Hydrant Replacement. Replaced 14 damaged or broken fire hydrants of various types and ages throughout the Agua Fria District as they are found during routine hydrant maintenance or when reported to us. This would include hydrants struck and damaged by drunk drivers. Replacing a hydrant costs about \$8,000 per unit including labor.	Jan-17	Dec-17	\$ 111,423	335000	111,423
52	1004404		17 WM Ext-Survival to Lake AFB	Extension of the 12-inch water main in Survival from north of the Northern Parkway to the south end of the Agua Fria water service area at the NW corner of Lake AFB to improve regional water distribution	Apr-17	Nov-17	\$ 1,650,851	331001	1,650,851
53	1004389		WT Surge Tank Compressor Rplc	Replace the compressor pump on the surge tank at the White Tanks facility; BRAND 10T3NLM Two Stage Bare Pump, Cast Iron Frame and Cylinders 360 Deg. Cylinder Cooling, Splash Lubrication, One piece connecting Rods 1.0 NPT Connections, 125PSIG //Compressor cylinders has failed and was no longer operable. Made efforts to get it repaired but because of being a specialty compressor, parts and labor outstripped a new unit.	Apr-17	Jul-17	\$ 14,130	320100	14,130
54	1004807		AF 300 Generator Repair	PCB assembly circuit board P/N 327-1379-02, control boards in the generator had failed causing the generator to have coolant and fuel failure alarms that caused the generator to callout and was non resettable, and AF 300 is a stand alone plant. Emergency Repair on AF 300 generator to repair a control board in the generator.	Jun-17	Jul-17	\$ 3,668	310000	3,668

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55	1003944		AF WP3 BP6 Pump&Motor Repair	Goalds Pump Model: 14R1LO, DWT, SN: FR418340-01 and US 751P, 178SRPM, 230/460V Vertical Motor, weld and machine the bowl & section bell fits, #2 column ODE, head to 1st column and 1st column (corroded). Machine lower bearings (oversized), machine impeller wear rings - min clean up and fabricate bowl wear rings. Balance impellers, assemble and prep for recoting. Old pump had worn out at the discharge head and column pipe fit area causing misalignment of shafting which caused vibration. - Remove pump and motor and repair at Agua Fria Water Plant 3 Booster Pump 6	Jan-17	Oct-17	\$ 27,294	311200	27,294	
56	1003945		17 AF TL1 CL2 Leak Detector	Replacement SLD-1-CL SUPERIOR 0-10 PPM CHLORINE LEAK DETECTOR 1.00 GD-109 INTERNAL BATTERY BACK UP FOR CHLORINE & OR SULPHUR DIOXIDE LEAK DETECTORS-Remove and replace the damaged superior CL2 leak detector at the Agua Fria Trunkline 1	Jan-17	Dec-17	\$ 2,754	346190	2,754	
57	1003946		AF Well 5.2 Production Mtr Rpl	Replacement Endress + Hauser Promag L 400, SL4C1H, DN100 4" Model No: SL4C1H-7L30/0-Remove and replace faulty the 4" production meter at Agua Fria Well 5.2	Jan-17	Dec-17	\$ 3,618	334100	3,618	
58	1003947		AF WP5 TL Meter Replacement	Replacement Endress + Hauser Promag L 400, SL4C1H, DN100 4" Model No: SL4C1H-7L30/0-Remove and replace faulty 12" Trunk line meter at Agua Fria Water Plant 5	Jan-17	Jun-17	\$ 4,157	334100	4,157	
59	1003971		17 AF CrtclSpare Parts Superior	Replacement 2.00 RM-1.50 50PPD REMOTE METERING PANEL 3 EJ-1.5 SUPERIOR EJECTOR #5 EJ-1.5 SUPERIOR EJECTOR #5 VR-1 CL2 VACUUM REGULATOR SO-1 CL2/SO2 SWITCHOVER MODULE TU-100 SUPERIOR CHLORINATION EQUIPMENT 25' ROLL OF VACUUM TUBING-Critical Spare Parts for Inventory - Superior Equipment for Agua Fria District chlorine injectors.	Jan-17	Dec-17	\$ 6,349	347000	6,349	
60	1004037		WT Finished Water Meter Rplmnt	Replace the 24" finish water meter, Endress + Hauser Promag L 400, SL4C6H, DN600 24" Model No: SL4C6H-5W1/0/SL4C6H-1A1HPSD1(A1KGB+AAE1B10/7) The original was not accurately recording flow. Had technician investigate the problem and it was discovered that water had gotten into the electronics. Replaced with newer more reliable technology.	Feb-17	Apr-17	\$ 16,184	334100	16,184	
61	1003174		WT Finished Water Pump 40	Xylem VIT-FFM with 24FH-3 Stage Bowl Assembly, US Motor, 300HP, 5012P Frame, 900 RPM, 460VAC, WPII Encl, ABB VFD PowerFlex 753 Drive, Supply 500 Amp Breaker and Bucket for existing MCC section, Val-Matic 8" ARV with manual gear and hand wheel and 18" Silent Check Valve, and Run conduit and Cu 6 cable from VFD to existing PLC. This pump/motor, VFD, piping and all required hardware is necessary to meet the pumping requirements of the plant at Full Capacity, currently we are at our Max output during high demand periods. - Install new 10 MGD pump, piping, check valve, motor, VFD, electrical components and all required hardware at the White Tanks facility.	Oct-16	Aug-17	\$ 362,609	320100	362,609	
62	1004040		AF WP100 BP4 Impeller Rplmnt	Goalds P/N C04267SS, 316L, Stainless Steel Impellers 1-1/2" 10 TPI, 304 SS Line Shaft Couplings 1 John Crane 5010, 1.57 Cartridge Seal Qty 1 Lot 0-Rings, Gaskets, Hardware Etc. 84.05 Qty 8 Hours Machine Work (Impeller 1 Shafting)-Replacement for damaged impeller on booster pump 4 at Agua Fria Water Plant 100	Feb-17	May-17	\$ 10,500	311200	10,500	
63	1004043		AF WP9 Bypass Valve Rplmnt	AFC2516FFOLHW 16 FLG RW OL GATE VLV W/ H/WHIL ZN and RFCA501174016000 16 FLG COUP ADPT 17.40. The 16" valve is allowing water to leak by which affects the chlorine feed of the plant and also directly affects the dynamic flow set point at AF 19 for the storage tank level - Replace the 16" Gate Valve on the 16" Bypass line at Agua Fria Water Plant 9	Feb-17	May-17	\$ 13,264	304100	13,264	
64	1004163		AF Well 11.2 Meter Replacements	New Endress + Hauser Promag L 400, SL4C2H, DN200 8" Model No: SL4C2H-6QD5/0- Replacement meter for faulty 10" production meter and the 8" EH waste meter at AF Well 11.2	Feb-17	May-17	\$ 12,756	334100	12,756	
65	1004164		AF Well 4.5 10" Meter Rplmnt	New Endress + Hauser Promag L 400, SL4C2F, DN250 10" Model No: SL4C2F-46K2/0-Replace faulty 10" production meter at AF Well 4.5	Feb-17	May-17	\$ 7,167	334100	7,167	
66	1004182		AF WP14 Automatic Gate Opener	Install new All-0-Matic T hp operator with two (2) safety loops and photo eyes. Wire power into building. Safety requirement for large sliding gate at AF 14	Feb-17	Jun-17	\$ 23,622	304500	23,622	
67	1004210		AF TL Well 3 Repair	new Goalds 12WALC, 14 Stage Pump Designed For 600 GPM@ 779 TDH, replace motor with new Hitachi 150 HP, 1780, 460V Submersible Motor, 820' 1-1/2" Pvc Air Line, Splice 350 MCM Cable to motor, assemble and install to 820', test and return to service- RPM, 460/3/60 3 Wire Submersible motor and 350MCM Submersible Cable from 820'/Remove and replace the pump and motor for the Agua Fria trunk line Well 3-replacement of failed well pump atn AF TL3	Mar-17	May-17	\$ 91,584	311200	91,584	
68	1004254		AF WP9 Ion Exchange Gate Valve	10 F6102 FLANGED CLOW GATE VLV 21053400 (2) and RFCA-11.10-304SS 10 ROMAC CPLG 9900000 (1)- Currently the (2) 10" gate valves do not isolate the line correctly which allows water to fill up the Ion wet well basin.1005611 17 Plants & Wells 7F - Replace 2 10" gate valves to isolate the Ion Exchange Gill line at AF WP9	Mar-17	May-17	\$ 4,858	304500	4,858	
69	1004390		AF TL Well 1 Disc Replacement	QTY2*OSECO GR Type Rupture Disc New P/N# GR03-4586-C Previous P/N# Z-1516-01 3", 316 SS, Non Asbestos Gasket 1/16" 150 PSIG @ 72 F- Replacement of blown rupture disc at Agua Fria Trunk Line Well 1	Apr-17	Jun-17	\$ 2,084	346190	2,084	
70	1004413		AF WP9 IOX Train 2 - 8" Meter	New Endress + Hauser Promag L 400, SL4C2H, DN200 8" Model No: SL4C2H-6QD5/0-Remove and replace malfunctioning 8" meter at Agua Fria Water Plant 9	Apr-17	Jun-17	\$ 3,112	334100	3,112	
71	1004425		AF WP2 Generator Repairs	Drain coolant, disassemble components, install new coolant hoses, manifold gaskets, cross over hose, oil cooler gaskets. Install new fan and alternator belts and test run. - Generator started to have several coolant leaks and this is the emergency power for plant - Make generator cooling system repairs per quote and replace system belts on generator at Agua Fria Water Plant 2	Apr-17	Oct-17	\$ 3,473	310000	3,473	
72	1004783		AF WP3 Int/Trees Remove/Improve	24" Box , Chilean Mesquite Tree to be delivered and Planted in designated areas and 1150 lineal ft. of 3/4" schedule 40 pvc Pipe, to be buried 5'-7" in depth. Trees had died due to bad irrigation piping, we started to get Customer call ins - Replace 9 dead trees and make improvements to the irrigation system at Agua Fria Water Plant 3	Jun-17	Oct-17	\$ 4,061	304600	4,061	
73	1004808		AF WP9 IOX Vessel Valves Rplmt	Replacement OMNI valves w. socket connections 1" VALVE BALL, CMPCT ELEC NEMA 4X S PVC EPDM PTFE, SER 83 115V SOCKET CONNECTION, DIFFERENT PART NUMBER IF THREAD CONNECTION, INDICATING LIGHT 2-POSITION ELECTROMINI VLV-Replace valves and indicator lights the IOX Vessel valves at Agua Fria Water Plant 9	Jun-17	Oct-17	\$ 2,741	331001	2,741	

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74	1004241		WT Cretl Sp Circuit Breakers	1005611 17 Plants & Wells 7F - Secure circuit breakers to be used in the event existing circuit breakers fail safety testing at the White Tanks Facility. NW0813 - Main and Generator, NW0113 - MCCA, NW1613 - MCCA, NW0813 - PP4, NW0813 - PP5//8 breakers were identified as critical to the plant operation, if any of these breakers were to go down, significant plant production would be lost. Also, the breakers were to undergo testing for safety and fire potential reasons. If any of the breakers were to fail they could not be re-installed so it was decided to procure 5 breakers to backup 8 locations because of some commonality.	Mar-17	Dec-17	\$ 146,285	320100	146,285
75	1003940		WT Chemical Feed Manifold	Replace all chemical manifolds in caustic and bleach containment at the White Tanks Facility: 1", 1/2" and 3/4" CPVC Pipe // A large portion of two different chemical injection manifolds that were exposed to the sun were replaced because of constant line repairs. The pipe needed to be replaced because of sun exposure and the harsh chemicals it conveyed.	Jan-17	Mar-17	\$ 56,399	320100	56,399
76	1003941		WT Chemical Injection Quill Sys	Install a serviceable injection quill at the raw water feed at the White Tanks Facility. JEB-132-B-T-10-0, JEB-132-B-S-100. // We added redundancy at the point of chemical injection. The old injectors needed the entire production to be shutdown to change or clean. The new system minimizes shutdown and allows for online service.	Jan-17	Aug-17	\$ 7,830	320100	7,830
77	1003942		WT Fall Protection System	Install fall protection and retrieval system for confined space entry at the White Tanks Facility. ; 24, IN-2238, 4" Floor adapter base / 2, IN2240, 4" Mast / 2, IN2404 Mounting Bracket / 2, IN-2237 Davit Arm / 2, 10158178 Workman Rescuer / 2, IN-2903 4" Mural Adapter Base-Zinc Plated / 2, 10101146 D-Ring Attachment Kit / 2, 62707-001 Leading Edge, 25in Galvanized 236 Cable, Self Retracting Lanyard / 2, 62710-00 Leading Edge, 25in Galvanized 336 Cable, Self Retracting Lanyard // Needed retrieval and fall protection system to be OSHA compliant, Current system didn't allow for safe access to several frequent entered confined spaces.	Jan-17	Jun-17	\$ 54,373	320100	54,373
78	1003943		WT Raw Water Motor Repair	Pull motor for repairs and replacement on the Raw Water Motor at White Tank Facility, Titan II Us Motor Model: 7228-RCRM, HP: 125 // Repaired Motor because of failing bearing. Bearing was making noise and was going out.	Jan-17	Dec-17	\$ 11,620	320100	11,620
79	1004249		WT Cretl Spares Saturation Tank	1003611 17 Plants & Wells 7F - Critical spare parts for the Saturation Tank at the White Tank Facility; Orion Instruments / Model: OES-100 // Purchase parts that had failed in the past from corrosive conditions that include level indicators and electrical switches. These parts have long lead times and if they are not in stock, disruptions to production can be as long as 4-6 weeks at a rate of 33%.	Mar-17	May-17	\$ 2,375	320100	2,375
80	1004250		WT DAF Motor & Pump Repair	1003611 17 Plants & Wells 7F - Repair the DAF pump and motor at the White Tanks Facility; Dissolved air flotation pump (M/IN 12AH-RM15, Horizontal Frame Mounted End Suction and centrifugal pump, size 3x4x10, 740 GPM Motor: 60 HP 3550 RPM, Electric Motor) // Replaced 2 of 3 pumps and motors because of worn impellers on pumps and bearing noise on motors. This are original equipment and recycle corrosive treated water.	Mar-17	May-17	\$ 9,818	320100	9,818
81	1004251		17 WT UV Cretl Spare Parts	1003611 17 Plants & Wells 7F - Replenish critical spare inventory for UV parts at the White Tanks facility. ; Tojan - 710106-02 / O-Ring, 4-1/8 ID x 1/8 w EPDM-FDA, 4-pack, part #0021610 / O-Ring, 1-5/8 I x 3/16 x EPDM-FDA, 4-pack, part #0021970 / U-Cap 42mm SLV UVS Viton Seal, part #820615 / ACTI clean, 1 liter, NSF, part #820108 / O-Ring, 2x1/16 Viton-T, part #002190-0330 / Sleeve, Synth Quartz, 3x4x2x876, part #820820-876 // Parts were purchased to fulfill UV inventory parts that can take down a UV reactor if not stocked.	Mar-17	May-17	\$ 2,549	320100	2,549
82	1004252		AF WP12 BP3 Repair	AF12, BP3 Simflo Vertical Turbine Pump S/N - 17731, modify stuffing box for new mechanical seal, fabricate new steam bearing, rebalace impeller, install seal flush line and steady bearing to motor for shaft/seal support - AF 12 only has 3 pumps and with the summer season quickly approaching we need to make sure we have all the pumping capacity available.-1003611 17 Plants & Wells 7F - Repair the pump assembly on booster pump 3 at Agua Fria Water Plant 12.	Mar-17	Jun-17	\$ 13,505	320100	13,505
83	1004253		WT Cretl Sp Transmissivity Anlyz	1003611 17 Plants & Wells 7F - Purchase critical spare transmissivity Analyzer for the White Tanks Facility. ; IMI Adapter, Optisiew Kit, part #905314 / Lamp, Philips TUV-PL-S-5 CW UV T, part #015309 // UV transmissivity spare analyzer, this is a ADEQ requirement to do continuous monitoring for transmittance. The UV reactors need this value to accurately dose UV light. The other parts are equipment that have long lead times and can potentially cause loss of production.	Mar-17	May-17	\$ 3,421	320100	3,421
84	1004472		WT Finished Water Pump Cable	Replace the cabling for the 10 MGD Finished Water pump at the White Tanks Facility. ; General Cable rated at 2000V spikes 350MCM VFD cable, each cable run is 275 feet // The Finished water distribution pump cable had insulation failure and was grounding out. The cable was inoperable and had to be replaced for the motor to work.	May-17	Jun-17	\$ 27,259	320100	27,259
85	1004784		WT A/C Thermostat Replacement	Replace the A/C Thermostat at the Intake and UV Building at the White Tanks Facility; Band AC thermostat MC300 series solid state dual unit load/lag controller X2, Model: // Replaced non working load/lag thermostat operators.	Jun-17	Oct-17	\$ 989	320100	989
86	1003975		WT DAF Control Meter Rplmnt	Replace the malfunctioning Raw Water meter at the White Tanks Facility; Endress + Hauser Promag I, 400, SL4C61, DN600 24" Model No: SL4C61-318T10 / SL4C61- AALHP5DUAIKGB+AAEBL6 // Replaced meter that had intermittent flow signal failures, this unit is the main meter that controls all aspects of our treatment process from pump flows to chemical dosing.	Jan-17	Dec-17	\$ 7,897	311200	7,897
87	1004886		WT DAF Mixer Motor Cretl Spare	Critical Spare DAF Mixer Motor for White Tanks Facility; Baldor motor - proprietary to Lightning Mixer (mixer S/N 1000001772296), Baldor M/N 15Q1, S/N 1-1772296 - special order replacement motor - Hfp, 1800 RPM, 147C frame, TEFC enclosure / Identified as a critical spare because loss of mixing capabilities causes instability in treatment and can cause a shutdown of one DAF train and a loss of 33% production.	Jul-17	Nov-17	\$ 2,281	304100	2,281
88	1004905		AF WP12 Level Controller&Cable	New 170111 OOOOX4-XOP Pulsar Ultra 3 Level controller wall mount, 3 relay/DB 1 0020000000- NP Pulsar -Remove and replace a faulty Level Controller and Cable at Agua Fria Water Plant 12	Aug-17	Oct-17	\$ 1,854	320100	1,854
89	1004961		AF-WPS 8" Meter&Flow Converter	db10 miniducer 20 M of cable	Aug-17	Oct-17	\$ 8,657	311200	8,657
90	1005131		AF Well 100.2 Replacement	New Goulds 14RJLC -9 stage, 300 HP 14" Hitachi motor, 1770 RPM, Standard construction (1) Splice Kit, stainless steel banding, misc. bolting, and PVC fittings-Replace damaged Motor, Pump Cable and Column Piping at Agua Fria Well 100.2	Sep-17	Nov-17	\$ 131,928	307000	131,928
91	1005137		AF Well 8.1 4" Meter Rplmnt	New Endress + Hauser Promag I, 400, SL4C1 H, DN100 4" Model No: SL4C 1 H-AH9910- Replacement for the faulty 4" Mag Meter at Agua Fria Well 8.1	Sep-17	Nov-17	\$ 3,447	307000	3,447
92	1005149		AFOC Toyota 8FGU25 Forklift	Toyota 8FGU25 Forklift for the Agua Fria Operations Center	Oct-17	Dec-17	\$ 30,618	341100	30,618
93	1005150		FRVale Vehicle JC 2018 Equinox	Replace Joe Cornejo's vehicle with a 2018 Chevrolet Equinox VIN 2GNAXHEV86G188909	Oct-17	Dec-17	\$ 24,932	341100	24,932
94	1005208		Replace Veh#090423 w/Veh120177	Replace vehicle # 090423 with vehicle # 120177 Chevrolet 1500	Oct-17	Dec-17	\$ 30,031	341100	30,031
95	1005209		Replace Veh#010073 w/Veh120178	Replace vehicle # 010073 with vehicle # 120178 Chevrolet 1500	Oct-17	Dec-17	\$ 28,102	341100	28,102
96	1005210		Replace Veh#010074 w/Veh120179	Replace vehicle # 010074 with vehicle # 120179 Chevrolet 1500	Oct-17	Dec-17	\$ 28,102	341100	28,102
97	1005211		Replace Veh#010080 w/Veh120180	Replace vehicle # 010080 with vehicle # 120180 Chevrolet 1500	Oct-17	Dec-17	\$ 28,102	341100	28,102

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98	1005214		AF WP2 BP6 Motor Repair	Goolds M/N 12RMO-3, S/N FR406378 and US Motor 60 HP 1750 RPM. Pump repaired with new shafting throughout pump, balance impellers, new bearings, and mechanical seal. Pump had a very bad vibration and mechanical seal was leaking. Repair the pump and motor at Agua Fria Water Plant 2 Booster Pump 6	Oct-17	Dec-17	\$ 13,889	320100	13,889
99	1005215		AF WP4 VFD#1 Replacement	AF plant 4, Install new Toshiba AS3 VP-3 125 HP VFD. Remove and replace damaged VFD #1 at Agua Fria Water Plant 4	Oct-17	Dec-17	\$ 12,190	320100	12,190
100	1005216		WT Portable Flow Meter	Purchase a portable flow meter for the White Tanks Facility; SIEMENS FS230 ULTRASONIC FLOW METER, 1 X FS230W SENSOR PIPE O.D. 10 TO 360 INCH O.D., PIPE WALL THICKNESS 0.32 TO 0.44 INCH, STANDARD FRAMES/TRACKS WITH STRAPS AND SPACER BAR, NEMA 4X ENCLOSURE, GRAPHICAL LOCAL USER INTERFACE, 4-20mA HART OUTPUT JUMPER SELECTED PASSIVE/ACTIVE, 1 X SENSOR CABLE, 10 METER LENGTH / SIEMENS ULTRASONIC CLAMP-ON MAGNETIC MOUNTING BRACKET, SENSOR SIZE: C.D.E. UNIVERSAL AND HIGH PRECISION. // Meter is to be used in emergency situations where critical flow meters are needed. The meter allows for a single adjustable wrap around flow meter. Acts as a critical spare for all flow meters on the property.	Oct-17	Dec-17	\$ 6,774	311200	6,774
101	1005219		WT TSS Analyzer	Purchase TSS Analyzer for measuring solids in the Clarifier at the White Tanks Facility; Royce Model 711 Portable SS Meter with 50-ft Cable // Meter is used to measure sludge depth in clarifiers, it allows us to manage our solids more efficiently. This is to replace a sludge judge which was not effective because of the depths we reach down to measure the sludge exceeded 20'	Oct-17	Dec-17	\$ 2,609	320100	2,609
102	1005220		AF WP2 VFD#3 Replacement	AF plant 2, New installation of VP-3 200 HP VFD replacement Perform proper lock out tag on VP-3 pump electrical Remove p2 from cabinet while keeping other components intact Install new Toshiba AS3 in existing cabinet, including new door mounted keypad Terminate controls and line and load on new AS3-Remove and replace faulty VFD #5 at Agua Fria Water Plant 2	Oct-17	Dec-17	\$ 16,771	320100	16,771
103	1005223		AF WP&10 Shade Structure Repair	AF 9/AF 10 Shade Structures are the following 27x12.5' sqft 337, 18'x8' sqft 257, 13.5x13.5' with roof down walk, and 2x2'. These replacements are needed because the current shade covers are torn or worn out and the equipment has no protection for the sun - Repair and replace damaged shade structures at Agua Fria Water Plant 9 & 10	Oct-17	Dec-17	\$ 8,957	304200	8,957
104	1005224		AF WP #5 Gate Installation	Furnish and install new automatic gate operator; power conduit for gate operator Furnish and install (2) conduits for future card readers Furnish and install (2) keyed switches for opening the gate. They will be keyed for Epcor Furnish and install concrete underground junction box Furnish and install a new exit station with a concrete base Furnish and install knob switch per Rural Metro standards Saw cut asphalt in front of the gate and sidewalk by the electrical room Saw cut concrete side walk and gate operator conduit opening Install cold patch asphalt in roadway Install concrete in areas that it was removed Core (3) holes in the wall by the electrical room and (1) hole by the man gate Trench and backfill from electrical room to gate-Installation of new gate operator and associated equipment at Agua Fria Water Plant #5	Oct-17	Dec-17	\$ 31,483	304400	31,483
105	1005225		WT SS Ball Valve Acid Manifold	Purchase two stainless steel ball valves for the Acid Manifold at the White Tanks Facility; 1" 9922MISW CN7M ALLOY 20 BALL VALVE; SOC WELD END CONN. X2 // These were to replace two leaking 93% sulfuric acid valves located at the acid injection manifold.	Oct-17	Dec-17	\$ 1,304	331001	1,304
106	1005243		17 Raw Water Pump/Mtr Rehab	Rehab and upgrade raw water pump and motor; Titan II Us Motor Model: 7228-BCBM, HP: 125 // Motor was showing signs of bearing failure.	Oct-17	Dec-17	\$ 53,286	320100	53,286
107	1005245		17 Intake NTU Meter Repl	Replace inaccurate intake NTU meter; SOLITAX ts-line sc/immersion probe 0.001-50 g/l; wiper; Stainless steel Model: LXV423.99/00100/ Pole mounting hardware Solids, 16cm bracket, SS pole 2m, Model: LZV714.99.53120 // This unit replaced a Hach surface scatter that was not representative of the water conditions, this location is where our water comes in and our first opportunity to make operational changes. The new unit was tried before we committed to the purchase and was ultimately successful.	Oct-17	Dec-17	\$ 4,892	311200	4,892
108	1005255		17 Electrical Panel Doors	Replace 3 electrical panel doors to be safety compliant; Circuit Breaker panel doors // These items were discovered to unsafe to plant personnel during a VPP audit. The doors were never installed during the original construction.	Nov-17	Dec-17	\$ 3,997	311200	3,997
109	1005273		WT 2-42" Intake Flow Meters	Purchase 2 42" Intake Mag Flow Meters for the White Tanks Facility; Endress + Hauser Promag L 400, 5L4CV0, AWWA 42" Model No: 5L4CV0-14U1/0 (5L4CV0-AALHPSDUWIKGB+AAEHLAPAJ) // These meters were for main inflow metering. The facility currently uses a level gauge that converts a level to flow. The accuracy isn't very good and better flow reads are needed to dose chemicals and track loss water.	Nov-17	Dec-17	\$ 25,909	311200	25,909
110	1005278		AF WP10 BP3 Repair	Repair of Goolds Vertical Turbine Pump M/N DWT, Size 12CLG, S/N FR467644-3 Clean, disassemble and inspect, sandblast all castings, machine impellers at skirt area, replace wear rings and balance coupling, replace case rings as required, replace all bowl bushings, line shaft bushings and stuffing box bushing, replace impeller collets, bowl shaft, line shaft and head shaft (416SS), line shaft couplings, mechanical seal, all gaskets, o-rings and hardware. Epoxy coat (Tsmec 141, NSF-61) all castings, odamm and discharge head, reassemble. Service call, servicemen will return to site, clean can and discharge piping, install repaired VTP, coupling and motor. Repair Booster Pump 3 at Agua Fria Water Plant 10	Nov-17	Dec-17	\$ 14,731	320100	14,731
111	1005284		AFOC Maint Group Tools & Equip	Equipment and tools for shop area at new Agua Fria Ops Center include Boge 7.5 HP air compressor, Lincoln welder, Jet hand saw, tool sets, Jet hyd. Press, work tables, blast cabinet, hose reels, jet drill press, pipe threader, disc sander, and other tools. Purchase all new tools & equipment for the maintenance group for the New Agua Fria Ops Center.	Nov-17	Dec-17	\$ 103,740	343000	103,740
112	1005289		WT ARC Flash Coord Study	Are Flash Coordination Study was performed on the entire White Tanks Water Treatment Facility prior to conducting (3) year breaker testing in December 2017. The additional construction that was installed did not include a complete coordination study. This study was also needed to comply to NFPA 70E Standard for Electrical Safety in the Workplace.	Nov-17	Dec-17	\$ 12,641	320100	12,641
113	1005290		AF WP1 A/C Replacements	REPLACEMENT OF BOTH AC UNITS FURNISH AND INSTALL TWO (2) NEW R410A YORK PREDATOR AIR HANDLERS FURNISH AND INSTALL TWO (2) NEW R410A YORK PREDATOR CONDENSERS - Replace failing AC units AF Water Plant # 1	Nov-17	Dec-17	\$ 30,434	304600	30,434
114	1005291		AF WP4 BP6 Mech Seal Rplmnt	Goolds Pump Model: DWT, 14RJM, SN FR468232, Seal & Bearing Change Out as required old mechanical seal was leaking badly and shaft had over the allow TIR at the stuffing box area. - Replace the mechanical seal on booster pump 6 at Agua Fria Water Plant 4	Nov-17	Dec-17	\$ 3,517	311200	3,517
115	1005294		AF Well 9.1 6" Meter Rplmnt	Replacement of inch Endress Hauser meter/two grounding discs-replacement of faulty well production meter at AF 9.1	Nov-17	Dec-17	\$ 2,248	311200	2,248

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116	1005309		17 WTWTP Cabinets&Worksta	Install storage cabinets and workstations in shop, Boroughs Work Center 3 - 12' Sections 4 - Lower Cabinets 48"W x 29"D x 40"H with Double Doors with Middle Shelf - 1 - 12' Long x 30"D Painted Steel Tops - 2 - 12' Long x 30"D Butcher Block Tops - 3 - Risers along the top 18"D x 19"H x 12L - 9 Upper Cabinets 48"W x 18"D x 19"H with Flip // Operation staff needed additional storage for tools and spare parts, operators in the past worked from folding tables and did not have adequate storage space.	Nov-17	Dec-17	\$ 19,752	340100	19,752
117	1005312		17 WTWTP PH Analyzer repl	Replace all PH analyzers and controllers: 200 CONTROLLER, AC, DC, 2 DIG, HACH, LXV404.99.00552/ pHID ac, Differential pH Digital Sensor, PEEK Body Material, DPD1P1 Convertible Body Style, General Purpose Glass Electrode, 70 C (158 F) Maximum Temperature // Replaced obsolete controllers that had historically been breaking down and were becoming challenging to repair. Ph probes were still available but were not compatible with newer style controller.	Nov-17	Dec-17	\$ 18,540	320100	18,540
118	1005313		17 WTWTP Return Flow Meter Repl	Replace and upsize return flow meter. Endress + Hauser, Promag L 400, 5L4C3H, DN300 12", Model No: 5L4C3H-SU09/0, (5L4C3H-AALHPSDU12GB+AAEBI4PA) // Replaced eratic reading flow meter.	Nov-17	Dec-17	\$ 5,367	311200	5,367
119	1005314		17 WTWTP A/C Repl	Replace aging A/C with higher efficiency units. Carrier 15 Scer Package Heat pump with Horizontal Enthalpy Economizer // The existing A/C are inefficient and costly to repair were replaced with units that have nearly twice the scer rating which helps us reduce operating cost. One old hard unit per building was kept as a spare backup and the new unit will be the primary.	Nov-17	Dec-17	\$ 33,135	304600	33,135
120	1005315		17 WTWTP Acid Tank Inspect	Inspect acid tank for future replacement; Acid tank inspection to track the corrosion and replacement of the bulk tank // The acid tank has deteriorating liner and needs replaced in the next few years.	Nov-17	Dec-17	\$ 4,003	330200	4,003
121	1005316		17 WTWTP Spare Valve Actuator	Stock actuator parts as critical spares to cover the entire facility ; AUMA Actuators, Incorporated- Replacement Head p/n AM01.1, AUMA Actuators, Incorporated- Replacement Head p/n AM01.1, AUMA Actuators, Inc. p/n Z006.413, AUMA Actuators, Incorporated- Spare Part p/n Z006.425, VD71-4/35 460V Electric Motor, AUMA Actuators, Inc. p/n Z006.440, MOTOR VD90-2/40 23KW 460V 60HZ, AUMA Actuators, Incorporated- Motor p/n Z011.401, MOTOR ADG3-4/80 37KW 480V 60HZ, AUMA Actuators, Inc. p/n Z012.104, MOTOR VDG3-4/45 49KW 460V 60HZ, CL II // One common spare for each of type of valve actuator was put in our inventory to reduce loss of production as most of these parts have 4-6 week lead times.	Nov-17	Dec-17	\$ 7,489	331001	7,489
122	1005319		17 WT Security Camera Sys Repl	Security Camera System replacement ; ExacQvision A series Ip Server, 8TB, 4 CH IP Camera, Axis -F5624-E MK II PIZ Camera, Axis P91A67 Pole Mount Bracket, Axis P91B61 Wall Mount Bracket, Axis P3229-1VE Mk II, 16-dot Fiber Converter Chassis, 10/100BS-TX-100BS-FX-ST, Fibre Converters, 16 // Security system was outdated and could no longer get parts for them. The new system allows for remote inspections and security in the event of break in.	Nov-17	Dec-17	\$ 56,996	304600	56,996
123	1005320		17 WT Conference Office Remodel	Place divider wall in ops office to allow for bigger conference room. Office Remodel & flooring // Needed bigger conference room to accommodate training, meetings and construction/project coordination meetings // Divided room in existing building.	Nov-17	Dec-17	\$ 15,338	340100	15,338
124	1005321		17 AF NaOCl Gen Cell Repl	AF Plant 100 CT75 Cell Assembly Order a replacement cell for the CT75 Chlorine System to generate sodium hypochlorite - replacement hypochlorite generation cell for chlorine generation unit at AF 100.	Nov-17	Dec-17	\$ 16,242	320100	0
125	1005356		17 AF Well Shade Struct Repa	Well sites are AF 100.1 (9x22x9'), AF 100.2 (266.5 sqft), AF 8.2 (264 sqft), AF 8.3 (322 sqft), and AF 11 (416 sqft). These replacements are needed because the current shade covers are torn or worn out and the equipment has no protection for the sun - Repair and replace damaged shade structures. - 1005G11 LT Plants & Wells 7E - 17 AF Well Shade Struct Repa	Nov-17	Dec-17	\$ 35,633	304200	35,633
126	1004222		Agua Fria Operations Center	Construction of an 11,000 sf Operations Center to replace currently over-utilized facilities and leased space and to consolidate Operations staff that maintain the Agua Fria and surrounding water service areas from 4 locations to one.	Mar-17	Dec-17	\$ -	Sep-33	3,306,021
127	TOTAL						\$ 27,630,962	\$ 29,830,751	

# Exhibit FMS -2REB

## SUN CITY WATER POST TEST YEAR PLANT - REBUTTAL

Item No.	Project No.	Project Name/Description	Reason for Project & What is Project Replacing? Provide existing hp, length, diameter, material, etc.	Date Construction Began	Date Construction is Used and Useful	Post Test Year Plant Additions	After Construction, Costs Transferred to which NARUC Accounts No's	Rebuttal Update
1	<b>2016 Projects Listed</b>							
2	1002778	2016 SC WP9 Hypo Tank Replace	Replace (2) 500-gallon sodium hypochlorite tanks, piping and level instrumentation due to end of life	May-16	Jan-17	\$ 57,782	330200	\$ 57,782
3	1001894	16 Replace truck # 062078	replace 2006 ChevroletSilverado in 7A	Jan-16	Jan-17	\$ 44,511	341100	\$ 44,511
4	1002260	16 7B SC w Eng Studies	Engineering Planning Studies in support of Sun City water system	Jan-16	Jan-17	\$ 43,883	331001	\$ 43,883
5	1001923	16 Valves replaced 7B	Valves - Replacement. Replaced 8 broken and failing distribution system valves of various types and sizes throughout the Sun City District. Typically the valves replaced were original equipment.	Jan-16	Jan-17	\$ 31,845	331001	\$ 31,845
6	1002644	16 SC Services MedianAbandonme	Abandon 20 - 1.5" water services and pull the associated meters in the medians in the Sun City district.	Mar-16	Jan-17	\$ 30,402	333000	\$ 30,402
7	1001921	16 Meters replaced 7B	Meters replaced. Replaced 2,782 broken, stuck and damaged water meters of various sizes throughout the Sun City District as they were discovered or reported.	Dec-15	Jan-17	\$ 22,433	334100	\$ 22,433
8	1001922	16 Services replaced 7B	Services replaced. Replaced 10 leaking water services of various sizes throughout the Sun City District as they were found or reported. Typically the services replaced were original equipment and were replaced with copper. Replacing a service costs about \$2,000 per copper service including labor.	Jan-16	Jan-17	\$ 20,599	333000	\$ 20,599
9	1001920	16 Main breaks 7B	Main Breaks. Repaired 6 main breaks, requiring approximately 40 feet of C-900 plastic 8" pipe.	Jan-16	Jan-17	\$ 13,388	331001	\$ 13,388
10	1001919	16 Hydrants replaced 7B	Hydrants - Replacement. Replaced damaged or broken fire hydrants of various types and ages throughout the Sun City District as they are found during routine hydrant maintenance or when reported to us. This would include hydrants struck and damaged by drunk drivers. Replacing a hydrant costs about \$8,000 per unit including labor.	Jan-16	Jan-17	\$ 913	335000	\$ 913
12	1001895	16 Replace truck # 071077	repalce 2007 ChevroletSilverado Classic in 7A	Jan-16	Jan-17	\$ 260	341100	\$ 260
14	1001283	SC3 Vault Meter Reloc CV-502235	PFE SC 3 Vault Meter Relocation. Raise meters and PRVs to above ground locations to eliminate confined spaces.	Oct-15	Jan-17	\$ (25,556)	334100	\$ (25,556)
15	1001327	Replace Well 8.2B	Replace Well 8.2 due to collapsed casing	Aug-15	Apr-17	\$ 2,782,963	307000	\$ 2,782,963
16	1002994	SC WP 6 Booster Station Improvements	Installation of new flowmeters and VFDs and removal of water-based pressure devices from electrical panels to improve operations and safety of the site	Aug-16	Sep-17	\$ 550,474	304100	\$ 550,474
18	1002809	SC WP 6 Chlorination & SCADA Upgrades	Installation of centralized chlorination system to improve safety and maintainability	Apr-16	Mar-17	\$ 261,919	346100	\$ 261,919
19	1001315	99th Ave & Union Hills CV-579016	99th Ave & Union Hills Dr Drain Relocations in advance of MCDOT roadway and drainage improvements	Apr-15	Aug-17	\$ 219,621	331001	\$ 219,621
20	1001425	115th Ave Waterline CV-579011	115th Ave & Union Hills Dr Waterline Relocations ahead of FCDMC drainage improvements	Jan-15	Apr-18	\$ 354,800	331001	\$ 354,800
21	1003172	SC WP9 BP1 Repair	Simflo Vertical Pump, SN: 107329A 4-07- The pump had excessive shaft deflection, caused from the line shaft bearing failure throughout the entire pump and caused motor bearing issues at Sun City Water Plant 9 BP 1	Oct-16	Jan-17	\$ 14,296	304100	\$ 14,296
22	1003173	SC OIT & Site Security	Install Badge readers and intrusion detection switches at Plants 1, 5, and 6. New programming to add additional password protection on OIT's and control alarming based on operator badge access to sites.	Oct-16	Jan-17	\$ 16,632	304100	\$ 16,632
23	1003171	Youngtown Office Ice Machine	Replace faulty ice and water machine at Youngtown office. Purchase a new ice machine for the Youngtown Office	Oct-16	Jan-17	\$ 4,239	344000	\$ 4,239
25	1003148	SC WP1 BP1 Mechanical Seal Repl	Remove and replace the mechanical seal at SC WP1 BP1	Sep-16	Jan-17	\$ 4,151	304100	\$ 4,151
26	1003147	SC WP3 BP3 Mechanical Seal Repl	Remove and replace the mechanical seal at SC Water Plant 3 Booster Pump 3	Sep-16	Jan-17	\$ 3,580	304100	\$ 3,580
27	1003170	SC CL2 Gas Detector Maint Group	Central Division Maintenance team Chlorine gas detector to meet our EPCOR safety standard. Purchase an Industrial Gas Detector and associated equipment	Oct-16	Jan-17	\$ 55	343000	\$ 55



## SUN CITY WATER POST TEST YEAR PLANT - REBUTTAL

Item No.	Project No.	Project Name/Description	Reason for Project & What is Project Replacing? Provide existing hp, length, diameter, material, etc.	Date Construction Began	Date Construction is Used and Useful	Post Test Year Plant Additions	After Construction, Costs Transferred to which NARUC Accounts No's	Rebuttal Update
28	1002110	16 Meters new 7B	Meter Installations for New Customers	Jan-16	Jan-17	\$ 10,737	334100	\$ 10,737
29	1002145	16 Services new 7B	New Service Lines for customers	Jan-16	Jan-17	\$ (4,141)	333000	\$ (4,141)
30								
31	<b>2017 Projects Listed</b>							\$ -
32	1003672	Coyote Lakes Waterline Replacement - Phase 2	Replacement of 4218 LF of 4-12 in main in Coyote Lakes to replace mains with a high occurrence of breaks	Jan-17	Aug-17	\$ 708,484	331001	\$ 708,484
34	1003536	17 Services - Replacement 7B	Blanket Project Services. Replaced 150 leaking water services of various sizes throughout the Sun City District as they were found or reported. Typically the services replaced were original equipment and were replaced with copper. Replacing a service costs about \$2,000 per copper service including labor.	Jan-17	Dec-17	\$ 592,845	333000	\$ 592,845
35	1003532	17 Meters 7B	Blanket Project Meters Replaced. Installed 3,051 new AMR meters in the Sun City District. Replaced a wide variety of existing aged, damaged and stuck water meters as part of the meter replacement program. New meters have AMR programming allowing them to be read remotely, reducing time spent reading meters, and providing more data for customers on usage patterns and finding leaks. This is a pilot program which may be expanded depending on results.	Jan-17	Dec-17	\$ 695,703	334100	\$ 695,703
38	1003685	Chlorination Safety Improvements	Installation of safety devices on the chlorination system at WP 2 to improve system safety	Jan-17	Dec-17	\$ 130,267	320100	\$ 130,267
40	1003676	PRV Automation	Upgrades to existing PRVs to allow for remote monitoring of flow and pressure	Jan-17	Dec-17	\$ 35,129	304100	\$ 35,129
42	1003529	17 Main Breaks 7B	Blanket Project Main Breaks. Sun City District experienced 41 emergency water main breaks ranging in sizes from 4 - 12" in diameter. Repairs were made with C-900 PVC plastic pipe	Jan-17	Dec-17	\$ 220,663	331001	\$ 220,663
44	1003538	17 Valves - Replacement 7B	Blanket Project Valves Replaced - Replaced 47 broken and failing distribution system valves of various types and sizes throughout the Sun City District. Typically the valves replaced were original equipment.	Jan-17	Dec-17	\$ 186,020	331001	\$ 186,020
46	1003521	17 Hydrants - Replacement 7B	Blanket Project Hydrants Replaced 30 damaged or broken fire hydrants of various types and ages throughout the Sun City District as they are found during routine hydrant maintenance or when reported to us. This would include hydrants struck and damaged by drunk drivers. Replacing a hydrant costs about \$8,000 per unit including labor.	Jan-17	Dec-17	\$ 237,324	335000	\$ 237,324
51	1003674	7B SC Water Eng Studies	Engineering Planning Studies in support of Sun City water system	Jan-17	Dec-17	\$ 49,096	331001	\$ 49,096
53	1003680	System-wide Chlorination Strategy Study & Implementa	Evaluation of disinfection alternatives and development of chlorination system standards	Jan-17	Dec-17	\$ 2,015	320100	\$ 2,015
58	1003948	SC Well 8.3B Repair	set up and removed Goulds 14RJLC 8 stage Submersible Pump SN# 18226, driven by Hitachi 300 HP, 1750 RPM, 460/3/60 3 Wire Submersible motor and 500MCM Submersible Cable-Repair Sun City Well 8.3B and replace motor well not pumping water.	Jan-17	Dec-17	\$ 82,193	304100	\$ 82,193
59	1003949	SC WP2 Shade Structure Rplcmnt	Replace fabric on existing structure 10'x40', installation will be done with ropes and grommets every 15' total sqft is 400'. Existing shade structure over work area had worn out and fallen apart - Replace the shade structure at the Sun City Water Plant 2	Jan-17	Dec-17	\$ 3,836	304500	\$ 3,836
60	1003970	17 SC WP8 Motor 1 Replacement	TECO Westinghouse, 75hp, 1800rpm, 230/460V, TEFC Max-PE Nema Premium Efficiency Inverter duty motor - This was an emergency due to how critical BP 1 is for pressure set points - Replace motor 1 due to failure motor shorted to ground at Sun City Water Plant 8.	Jan-17	Dec-17	\$ 4,490	311200	\$ 4,490
61	1004044	SC WP2 16" Meter Replacement	Endress + Hauser Promag I.400, 5L4C4H, DN400 16" Model No: 5L4C4H-3LJ8/0-Replace the malfunctioning 16" meter at Sun City Water Plant 2	Feb-17	May-17	\$ 11,362	311200	\$ 11,362

**SUN CITY WATER**  
**POST TEST YEAR PLANT - REBUTTAL**

Item No.	Project No.	Project Name/Description	Reason for Project & What is Project Replacing? Provide existing hp, length, diameter, material, etc.	Date Construction Began	Date Construction is Used and Useful	Post Test Year Plant Additions	After Construction, Costs Transferred to which NARUC Accounts No's	Rebuttal Update
62	1004046	17 SC Critical Spare Valves	These replacement valves ranged in sized 6" to 16" and were CLOW or Mueller brand - They replaced valves that were broken or leaking water by when closed and were from the original build of the plants - Critical Spare Valves for Sun City Plants and Wells for 2017. This will include Gate, Cla-Val, high pressure relief and butterfly style valves.	Jan-17	Dec-17	\$ 50,406	311200	\$ 50,406
63	1004047	17 SC Crtel Spare Check Valves	Replacement check valves were Val-Matic brand and the silent check valve style, replaced older swing style valves that were allowing water to pass by and slamming loudly - Critical spare check valves for Sun City plants and wells size ranges from 6" - 18" valves.	Jan-17	Dec-17	\$ 52,877	311200	\$ 52,877
64	1004211	SC Well 5.1 12" Meter Rplmnt	Endress + Hauser Promag L 400, 5L4C3H. DN300 12" Model No: 5L4C3H-4N94/0- Replacement for malfunctioning 12" meter at Sun City Well 5.1	Mar-17	May-17	\$ 5,796	311200	\$ 5,796
65	1004266	SC WP1 BP1 Replacement	QTY 2 Xylem -AC Horizontal Double Suction Split Case Centrifugal Pumps, Series 8100, M/N 8x6x17, Size 8"x6" 125# Flanged Connections, Cast Iron Bronze Fitted with 316 Stainless Steel Impellers, Standard Mechanical Seals-Remove and replace damaged booster Pump #1 at Sun City Water Plant 1	Mar-17	Dec-17	\$ 16,849	311200	\$ 16,849
66	1004275	SC WP8 15" Panelview	ALB - 2711P-T15C21D8S PANEL VIEW PLUS 7 GRAPHIC PANEL-Replace non-visible panelview with new 15" model at SC WP8	Mar-17	May-17	\$ 7,113	304200	\$ 7,113
67	1004387	SC WP3 Backflow Relocation	Trenching Included - 24" x 10" Backflow Preventer Fittings and Pipe - Includes 2" CPVC Pipe for Sleeving 3/4" Line Across Driveway. Relocate the backflow device at Sun City Water Plant 3	Apr-17	Oct-17	\$ 5,850	304200	\$ 5,850
68	1004411	SC WP8 BP1 Replacement	QTY 2 Xylem -AC Horizontal Double Suction Split Case Centrifugal Pumps, Series 8100, M/N 8x6x17, Size 8"x6" 125# Flanged Connections, Cast Iron Bronze Fitted with 316 Stainless Steel Impellers, Standard Mechanical Seals-Remove and replace damaged booster Pump 1 at Sun City Water Plant 8	Apr-17	Dec-17	\$ 17,497	311200	\$ 17,497
69	1004412	SC WP 1 HACH CL2 Analyzer	CLF10SC Panel Only LXV4SA.99.11022aa KTO: CLF10sc, GRAB SAMPLE, PANEL ONLY/ Controller Option 2982300 laa KTO: CLF10sc, sc200 DUAL INPUT, GRB SMPLE-Purchase a replacement for faulty HACH CL2 Analyzer, Controller and service partnership for Sun City Water Plant 1	Apr-17	Jul-17	\$ 10,453	311200	\$ 10,453
70	1004420	17 SC Crtel SpPt Supr CL2 Pt	VR-1 CL1 VACUUM REGULATOR-Replace used Superior CL2 Parts from Sun City's Critical Spare Inventory	Apr-17	Jun-17	\$ 2,355	311200	\$ 2,355
71	1004426	SC WP4 Generator Repairs	Drain coolant, disassembly of components, reassemble with new heater hoses, remove/replace oil ren hoses, pump in new coolant and test run to verify no leaks- old hoses had started to leak and become brittle-Make generator cooling system repairs per quote on generator at Sun City Water Plant 4	Apr-17	Oct-17	\$ 2,270	310000	\$ 2,270
72	1004469	SC WP8 Chlorination Replace	Installation of centralized chlorination system at WP 8 to improve safety and maintainability	May-17	Nov-17	\$ 286,543	320100	\$ 286,543
73	1004471	SC CL2Anlznr Valves/Repair Kits	HF Scientific CL2 Analyzer Solenoid Valve Gems Sensors and Controls, p/n AS2017-S136, 12 VDC, 7W,236/15, SPSI, ORIF 5/32 - HF Scientific CL2 Analyzer Solenoid Valves and Repair Kits critical spares	May-17	Jul-17	\$ 1,362	304100	\$ 1,362
74	1004480	SC WP5 Chlorination Replace	Installation of centralized chlorination system at WP 5 to improve safety and maintainability	May-17	Nov-17	\$ 477,627	320100	\$ 477,627
76	1004821	SC GasAlertMax&DockingSystem	BW Gas Alert Max XT II 4-Gas Detector MicroDock II Docking System / GasAlertMax XT II-Replace Malfunctioning Gas tester in Sun City with new Gas Alert Max and Docking System	Jun-17	Oct-17	\$ 2,543	343000	\$ 2,543

**SUN CITY WATER**  
**POST TEST YEAR PLANT - REBUTTAL**

Item No.	Project No.	Project Name/Description	Reason for Project & What is Project Replacing? Provide existing hp, length, diameter, material, etc.	Date Construction Began	Date Construction is Used and Useful	Post Test Year Plant Additions	After Construction, Costs Transferred to which NARUC Accounts No's	Rebuttal Update
77	1004845	SC Well 3.1 Motor Replacement	US Motor H0500V2SLHX 500 HP 5008PH Frame WPI Enclosure 1785 RPM 460/60/3-Remove and Replace 500 HP Motor at Sun City Well 3.1 well not pumping water	Jun-17	Oct-17	\$ 36,553	311200	\$ 36,553
78	1004867	Chlorine Imp @ SC WP3	Installation of safety devices on the chlorination system at WP 3 to improve system safety	Jul-17	Dec-17	\$ 61,791	320100	\$ 61,791
79	1004868	Chlorine Imp @ SC WP4	Installation of safety devices on the chlorination system at WP 4 to improve system safety	Jul-17	Dec-17	\$ 50,098	320100	\$ 50,098
80	1004889	17 SC CrtclSp HACH CL2Analyzer	(2) sc200 CONTROLLERS AC-DC DIG, HACH-Critical Spare Parts for Sun City HACH CL2 Analyzer	Jul-17	Oct-17	\$ 4,280	320100	\$ 4,280
81	1004890	SC Well 3.1 Motor Repair	US Vertical Motor 500HP, 1800RPM, 5008PH Frame, 460V, WPI Enclosure ID# M10 62002434-001R-10 NRR- Rewind stator, check runout and critical dimensions, balance rotor to industry standards and assemble motor with new bearings. Inspect motor after assembly and paint. Rewind starter on the motor and replace all major parts on Sun City Well 3.1	Jul-17	Dec-17	\$ 15,819	311200	\$ 15,819
82	1004916	SC Crtcl Sp CL2 VacuumRegulatr	VR-1 CL2 VACUUM REGULATOR-Replace 2 Vacuum Regulators of Sun City Critical Spares Inventory	Aug-17	Oct-17	\$ 1,705	320100	\$ 1,705
83	1004165	SC Well 5.1 SES Replacement	Furnish and install a N3R 600A Service Entrance Section; Furnish and install 15KVA transformer and panelboard inside a N3R MCC section behind the SES Furnish and install a new concrete pad 8" deep with #4 rebar. Pad dimensions should be 10FT x 13FT- Remove and replace damaged SES, concrete pad and light at Sun City Well 5.1	Feb-17	Dec-17	\$ 77,931	307000	\$ 77,931
84	1004270	17 SC WP5 BP8 Repairs	ITT-AC 8100, Size 10/8/175 S/N C221861-01, Rated 2000 GPM @ 220'TDH @ 1785 RPM w. 15.75 " impeller--Repair Booster Pump 8 at Sun City Water Plant 5	Mar-17	Dec-17	\$ 18,061	311200	\$ 18,061
85	1004819	SC WP3 Backflow H2OlineRelocat	Relocate chlorinator pump water line to down stream of check valve. Fitting and Pipe- relocation of the Backflow water line at Sun City Water Plant 3	Jun-17	Oct-17	\$ 1,472	331200	\$ 1,472
87	1005074	SC Crtcl Sp Superior Ejectors	RM-1-25 25 PPD REMOTE MOUNT SUPERIOR ROROMETER ASSEMBLY EJ-1-3 SUPERIOR EJECTOR #3-Critical Spare Superior Ejectors for the Sun City District	Sep-17	Nov-17	\$ 1,089	347000	\$ 1,089
88	1005127	SC WP9 Replace Water Softener	Replace water softener at Sun City Water Plant 9	Sep-17	Dec-17	\$ 1,081	340100	\$ 1,081
89	1005160	TDR BStation 2 BP2 Repair	Grundfos Pump Model: A98480884 P113290140, SN: 0140 Type: CR64-2-2 A-G-A-E-KUBE - Pump had lost a bearing causing impeller stack to drag - Repair the Grundfos pump at Tierra Del Rio Booster Station 2 Booster Pump 2	Sep-17	Nov-17	\$ 3,593	311200	\$ 3,593
89	1005221	SC WP1 BP1 Motor Replacement	Weg - 365TS frame, 75 HP, 1800RPM, 460V, 3PH, ODP enclosure, old motor was shorted to ground and needed to be replaced. Replace the motor 1 at Sun City Water Plant 1 Replace 75HP motor at Sun City Water Plant 1 BP1	Oct-17	Dec-17	\$ 4,210	311200	\$ 4,210
89	1005227	SC WP5 South Wall Install	Install 2' tall iron on top of the existing wall, total length of 454' - This was done to meet the wall height requirements of the Epcor Security Protocol -Fabricate and install new wrought iron railing on the south wall at Sun City Water Plant 5	Oct-17	Dec-17	\$ 14,023	304600	\$ 14,023
89	1005241	17 SC WP 8 18" Meter Repl	Endress+ Hauser Promag L 400, 5L4C4F, DN450 18" Model No: 5L4C4F-25F8/0-Remove and replace 18" malfunctioning meter.	Oct-17	Dec-17	\$ 8,439	334100	\$ 8,439
89	1005276	SC Well 8.3B Paving Improvement	Mill Existing AC Pavement 3" Thick (4,223 sf) Grade Entire Paving Area for Drainage (5,869 sf) Place 3" of AC Pavement (652 sy) Water Valve Bo Adjustment & Concrete Collars (3 each)-Remove and replace paved driveway at Sun City Well 8.3B	Nov-17	Dec-17	\$ 42,609	307000	\$ 42,609
89	1005288	SC WP5 Drywell Installation	Install new Drywell inside plant site at Sun City Water Plant 5. This was a drainage improvement project for the plant to eliminate standing water in the equipment yard.	Nov-17	Dec-17	\$ 9,500	304600	\$ 9,500

**SUN CITY WATER**  
**POST TEST YEAR PLANT - REBUTTAL**

Item No.	Project No.	Project Name/Description	Reason for Project & What is Project Replacing? Provide existing hp, length, diameter, material, etc.	Date Construction Began	Date Construction is Used and Useful	Post Test Year Plant Additions	After Construction, Costs Transferred to which NARUC Accounts No's	Rebuttal Update
89	1005346	17 SC NaOCl Gen Repair	Repairs ClorTee on-site sodium hypochlorite generation system cells generating a 0.8% sodium hypochlorite disinfection solution.-repairs made to the generation system at SC 9	Nov-17	Dec-17	\$ 4,236	310000	\$ 4,236
89	1005352	17 SC Well5.2 Upgrade	Remove and dispose of existing pump house. Design, fabricate, and place new pump house building on existing concrete foundation. Make modifications to site perimeter wall to meet 72" security standard.	Nov-17	Dec-17	\$ 130,836	304200	\$ 130,836
89	1005414	17 SC 1Cl2 BP Replace	H10B8S16-3A Webtrol 1HP 3ph 316SS Pump - Existing pump had a water leak that sprayed on the motor causing failure, this is for SC 1 - Replace bad chlorine booster pump with a new one as needed.	Nov-17	Dec-17	\$ 2,140	320100	\$ 2,140
89	1005762	17 SC Well2 Electric Replacement	Furnish and install conduits and wire for well pump feeder. Furnish and install a H-20 rated underground junction box for well pump feeder. Furnish and install conduits wire from the well pump starter to the well pump. Furnish and install conduit and wire for the well pump oiler, flowmeter and high pressure switch. Furnish and install conduit, wire and a new receptacle for the well pump area. Furnish and install conduit and wire for chlorine shed power and controls back to the booster pump station>Furnish and install control conduit for well pump. Furnish and install conduit and wire for power and controls for the de-sanding valveFCC loading the two (2) each sand separators on a truck and having them delivered to Kreb's facility in Tucson.-Haul 2 Desanders to Tucson and back and Replace bad Conduit for the SC Well 2.1 and it's controls.	Dec-17	Dec-17	\$ 56,814	311200	\$ 56,814
89	<b>TOTAL</b>					\$ 8,905,036		\$ 8,905,036

# Exhibit FM -3REB

## SUN CITY WEST WATER POST TEST YEAR PLANT - REBUTTAL

Item No.	Project No.	Project Name/Description	Reason for Project & What is Project Replacing? Provide existing hp, length, diameter, material, etc.	Date Construction Began	Date Construction is Used and Useful	Post Test Year Plant Additions	After Construction, Costs Transferred to which NARUC Accounts No's	Rebuttal Update
<b>1</b>	<b>2016 Projects Listed</b>							
2	1001316	Bell Rd & US 60 water CV-579017	Bell Rd & US 60 waterline & sewerline Relocations	Apr-15	Apr-17	\$ 156,699	331001	\$ 156,699
3	1001933	16 Valves replaced 7D	Valves replaced X inoperable butterfly distribution system valves with gate valves of various sizes throughout the Sun City West District. Typically the valves replaced were original equipment.	Jan-16	Jan-17	\$ 11,772	331001	\$ 11,772
4	1002267	16 7D SCW w Eng Studies	Engineering Planning Studies in support of Sun City West water system	Jan-16	Jan-17	\$ 9,554	331001	\$ 9,554
5	1001931	16 Meters replaced 7D	Meters replaced. Replaced 2,448 of a wide variety of existing aged, damaged, and stuck water meters as part of the water meter replacement program. New meters have AMR program allowing them to be read remotely, reducing time spent reading meters, and providing more data for customers on usage patterns and finding leaks. This is a pilot program which may be expanded depending on results.	Jan-16	Jan-17	\$ 6,438	334100	\$ 6,438
6	1001932	16 Services replaced 7D	Services replaced - Replaced XX leaking water services of various sizes throughout the Sun City West District as they were found or reported. Typically the services replaced were original equipment and were replaced with copper. Replacing a service costs about \$2,000 per copper service including labor.	Jan-16	Jan-17	\$ 3,172	333000	\$ 3,172
7	1001928	16 Hydrants replaced 7D	Hydrants - Replacement. Replaced damaged or broken fire hydrants of various types and ages throughout the Sun City District as they are found during routine hydrant maintenance or when reported to us. This would include hydrants struck and damaged by drunk drivers. Replacing a hydrant costs about \$8,000 per unit including labor.	Jan-16	Jan-17	\$ 2,833	335000	\$ 2,833
8	1001930	16 Main breaks 7D	Main Breaks. Repaired 1 main break, requiring approximately 10 feet of C-900 plastic 8" pipe.	Jan-16	Jan-17	\$ 2,678	331001	\$ 2,678
9	1003167	WP2 New SES, ATS, and Generator	Replacement of existing generator, ATS, and SES	Oct-16	Jun-17	\$ 624,519	311200	\$ 624,519
10	1003357	SCW WP1 Clarifier Improvements	Installation of new safety galvanized hand rails and walkway decking for the surface of the clarifiers at SCW Water Plant 1	Nov-16	Jan-17	\$ 77,301	311200	\$ 77,301
11	1003769	SCWWP2 RaiseChemPumpRepDayTank	Raise the Chemical Pumps from floor level to 3' and replacement of the Polyethylene chlorine storage day tank at Sun City West Water Plant 2	Dec-16	Jan-17	\$ 27,023	311530	\$ 27,023
12	1003770	SCWWP2 Housekeep PadReplace	Custom Casting-Black Zanite Plus Polymer Composite Base Plate, 76" X 26" X 6" with 8 303SS Inserts -Original made of steel and had rusted away over time - Replace steel bases of booster pumps and motors are bolted to improve pump/motor bearing life at Sun City West Water Plant 2	Dec-16	Jan-17	\$ 12,247	304100	\$ 12,247

## SUN CITY WEST WATER POST TEST YEAR PLANT - REBUTTAL

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13	1003065	SCW WP1 Replace Blower Valves	10" DeZURIK FLANGE BUTTERFLY VALVE W/ BARE STEM FOR EMO-Remove, replace and paint Two failing (2) 10" backwash valves at the Sun City Water Plant No. 1 (SCWP1).	Sep-16	Jan-17	\$ 7,792	311200	\$ 7,792
14	1002112	16 Meters new 7D	Meter Installations for customers	Jan-16	Jan-17	\$ 1,175	334100	\$ 1,175
15								
16	<b>2017 Projects Listed</b>							
17	1003595	17 Meters 7D	Blanket Projects Meters. Replaced 1,119 of a wide variety of existing aged, damaged, and stuck water meters as part of the water meter replacement program. New meters have AMR program allowing them to be read remotely, reducing time spent reading meters, and providing more data for customers on usage patterns and finding leaks. This is a pilot program which may be expanded depending on results.	Jan-17	Dec-17	\$ 257,596	334100	\$ 257,596
18	1003599	17 Valves - Replacement 7D	Blanket Projects Valves - Valves replaced 37 inoperable butterfly distribution system valves with gate valves of various sizes throughout the Sun City West District. Typically the valves replaced were original equipment.	Jan-17	Dec-17	\$ 148,893	331001	\$ 148,893
19	1003598	17 Services - Replacement 7D	Blanket Projects Services. Replaced 38 leaking water services of various sizes throughout the Sun City West District as they were found or reported. Typically the services replaced were original equipment and were replaced with copper. Replacing a service costs about \$2,000 per copper service including labor.	Jan-17	Dec-17	\$ 76,995	333000	\$ 76,995
20	1003700	Well 1.2 Replacement	Replace existing crushed 6-in sewer line with 150 LF of 6-in sewer line	Jan-17	Dec-17	\$ 70,390	307000	\$ 70,390
21	1003593	17 Main Breaks 7D	Blanket Projects Main Breaks. Repaired 1 main break, requiring approximately 10 feet of C-900 plastic 8" pipe.	Jan-17	Dec-17	\$ 3,775	331001	\$ 3,775
22	1003590	17 Hydrants - Replacement 7D	Blanket Projects Hydrants Replaced. Replaced 1 damaged or broken fire hydrants of various types and ages throughout the Sun City District as they are found during routine hydrant maintenance or when reported to us. This would include hydrants struck and damaged by drunk drivers. Replacing a hydrant costs about \$8,000 per unit including labor.	Jan-17	Dec-17	\$ 5,094	335000	\$ 5,094
23	1003699	7D SCW Water Eng Studies	Engineering Planning Studies in support of Sun City West water system	Jan-17	Dec-17	\$ 10,052	331001	\$ 10,052
24	1003886	17 SCW New Meters	SCW New Meters. Installed 179 new AMR meters in the Sun City West District for new connections	Jan-16	Dec-17	\$ 8,550	334100	\$ 8,550

## SUN CITY WEST WATER POST TEST YEAR PLANT - REBUTTAL

Item No.	Project No.	Project Name/Description	Reason for Project & What is Project Replacing? Provide existing hp, length, diameter, material, etc.	Date Construction Began	Date Construction is Used and Useful	Post Test Year Plant Additions	After Construction, Costs Transferred to which NARUC Accounts No's	Rebuttal Update
25	1003950	SCW WP2 LZ Pipe Supports	Install Four (4) Painted, Carbon Steel Pipe Thrust Supports. Install Four (4) 3'-6" x 2'-0" x 2'-0" thick reinforced concrete foundations for supports to attach to. Replace Ex. Flange bolts (2 per Support) with longer bolts. Install Pipe supports on the low zone pump headers to at Sun City West water plant 2	Jan-17	Oct-17	\$ 12,627	304200	\$ 12,627
26	1003951	SCW WP2 HZ Meter Replacement	Endress + Hauser Promag L 400, 5L4C1H, DN100 4" Model No: 5L4C1H-7L30/0- Meter malfunctioning needs replacement at Sun City West water plant 2	Jan-17	Dec-17	\$ 20,252	311200	\$ 20,252
27	1003972	SCW WP2 HACH CL2 Analyzer	CLF10SC Panel Only LXV4SA.99.11022 laa KTO: CLF10sc, GRAB SAMPLE, PANEL ONLY/Controller Option 2982300 laa KTO: CLF10sc, se200 DUAL INPUT, GRB SMPLE-current CL2 Analyzer is malfunctioning and not reliable	Jan-17	Dec-17	\$ 7,535	320100	\$ 7,535
28	1003976	SCW WP1 BP8 Impeller Replcmt	ITI-AC Horizontal Split Case Centrifugal Pump M/N 8100, Size 10 X 8 X 17S, S/N QEG036-01 Rated 2000 GPM220' TDH, 15.7" Impeller Diameter-Unit has vibration and bearing noise, remove upper case, inspect impeller and case for damage and wear	Jan-17	Mar-17	\$ 8,498	311500	\$ 8,498
29	1003984	17 SCW Historian License	Purchase of Wonderware software and license for new SCW Historian Server to record operational data.	Jan-17	Feb-17	\$ 2,998	346190	\$ 2,998
30	1004052	SCW Well 1.2 Repair	Set up and removal National M/N SE12MC, 8 Stage Submersible Well Pump S/N 849430A-1 driven by Hitachi 200Hp, 1750 RPM, 460/3/60 Submersible Motor (3 Wire) and 250 MCM Submersible Cable220' TDH, 15.7" Impeller Diameter.-	Feb-17	Apr-17	\$ 31,906	307000	\$ 31,906
31	1004055	SCW WP1 PH Analyzer Controller	Endress + Hauser p/n CCM253-EP1105 Transmitter, chlorine/chlorine dioxide.-Unit has vibration and bearing noise, remove upper case, inspect impeller and case for damage and wear.	Feb-17	May-17	\$ 2,840	320100	\$ 2,840
32	1004061	SCW WP1 BP1 Impeller Rplmnt	AC 8100, 8 x 8-17, SN: C204535-01, P/N 52-119-947-002 Impeller - 316SS - Old silicon bronze impeller worn out-Replace booster pump 1 impeller at Sun City West Water Plant 1	Feb-17	Jul-17	\$ 10,562	311500	\$ 10,562
33	1004062	17 SCW Critical Spare Valves	These replacement valves ranged in sized 6" to 18" and were CLOW or Mueller brand- They replaced valves that were broken or leaking water by when closed and were from the original build of the plants-SCW Critical Spare Valves in 8" - 18" size ranges	Jan-17	Dec-17	\$ 41,277	311200	\$ 41,277
34	1004414	SCW WP1 HACH CL2 Analyzer	CLF10SC Panel Only LXV4SA.99.11022 laa KTO: CLF10sc, GRAB SAMPLE, PANEL ONLY/Controller Option 2982300 laa KTO: CLF10sc, se200 DUAL INPUT, GRB SMPLE-current CL2 Analyzer is malfunctioning and not reliable	Apr-17	Jun-17	\$ 10,686	320100	\$ 10,686



## SUN CITY WEST WATER POST TEST YEAR PLANT - REBUTTAL

Item No.	Project No.	Project Name/Description	Reason for Project & What is Project Replacing? Provide existing hp, length, diameter, material, etc.	Date Construction Began	Date Construction is Used and Useful	Post Test Year Plant Additions	After Construction, Costs Transferred to which NARUC Accounts No's	Rebuttal Update
35	1004419	SCW WP1 Vessel Bypass Valve	PEC: Style - DeZURIK Eccentric Plug Valve, Rectangular Port 8: Size - 8 Inch (200mm); (Standard Port), Stainless Steel Bearings, Welded-In Nickel Seat (Except Rubber Lined or Stainless Steel Bodies)-Remove and replace damaged Dezurik 8" Vessel Bypass Valve at Sun City West Water Plant 1	Apr-17	Oct-17	\$ 2,367	320100	\$ 2,367
36	1004423	SCW WP2 HousekeepPad BPInstall	Demolition and replacement of housekeeping pad for ITT-AC Horizontal split case centrifugal pumps-Old pads unstable and pump- motor alignment not impossible until replaced.	Apr-17	Oct-17	\$ 14,130	311200	\$ 14,130
37	1004428	SCW 1 chemical metering pump 1	Valve Assembly Complete -Suction and Discharge for URM9P, URM14P, URM28P,URM36P, URM42P- current 2 chemical metering pumps have leaks cannot feed chemical if pumps fail- Replacement liquid ends for chemical metering pumps located at SCW 1 in hypo and acid rooms	May-17	Jul-17	\$ 4,056	320100	\$ 4,056
38	1004473	SCW Wells 2.4/2.5 Shade Rplmnt	2 Structure covers, sand colored 95% fabric. Total 623 sq.ft. - Replace the torn shade structures material that provides shading for the electrical switch gear at SCW Wells 2.4 and 2.5	May-17	Oct-17	\$ 4,398	304100	\$ 4,398
39	1004781	SCW WP2 2" Drainline Repair	SCW 2 to repair a 2" drain line that is leaking this line is about 7-8' below ground - Leak causing safety concern around GIM vault area -Repair the 2" Drainline next to the GIM pit located at Sun City West Plant 2	Jun-17	Oct-17	\$ 2,077	304200	\$ 2,077
40	1004820	SCW WP2 Chemical Metering Pump	Qty 1 DELTA1020PVT2000UDC030ENO ProMinent Delta series metering Pump 4-20mA Control. Capacity 5.05 GPH @ 14SPSI-Replace bad chemical metering pump at Sun City West Water Plant 2	Jun-17	Oct-17	\$ 2,651	320100	\$ 2,651
41	1004888	SCW WP2 BP2 Motor Replacement	Teco 150HP, 460V/60Hz/3ph, 1780 RPM, Frame 445TS, P/N NP1504S445TS - Old motor shorted to ground and needs replaced. Replace motor #2 at Sun City West Water Plant 2	Jul-17	Oct-17	\$ 6,987	311200	\$ 6,987
42	1003704	WP1 Sludge,Arsenic,&GIM 17-7D	Evaluate alternatives to current coagulation-filtration treatment system to determine most cost-effective approach	Jan-17	Dec-17	\$ 42,222	320100	\$ 42,222
43	1004385	SCWWP1 Endress Hauser Maint Kit	Endress+ Hauser-Maintenance Kit p/n 71076921 TDH@ 1785-repair for analyzer that is malfunctioning	Apr-17	Nov-17	\$ 1,536	343000	\$ 1,536
44	1004474	SCW WP1 BP7 Repairs	ITT-AC 8100, Size 10 X 8 X 17S, S/N C221861-01, Rated 2000 GPM@ 220' TDH RPM with 15.7" Impeller Diameter-Remove and replace bad impeller at the Sun City West Water Plant 1 Booster Pump 7	May-17	Oct-17	\$ 13,399	311200	\$ 13,399

## SUN CITY WEST WATER POST TEST YEAR PLANT - REBUTTAL

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45	1004782	SCW 2 Rotork Actuator Replacement	Rotork IQTM500 WT Enclosure with Folomatic/CPT card 120/1/60 and Rotork IQT500 WT Enclosure with Folomatic/CPT card and Internal 24V DC Integral Battery Backup Supply 120/1/60 - Old actuators were worn out and no longer supported by the Manufacturer -Replace 2 Rotork Actuators on the valves at Sun City West Water Plant 2 on the treatment vessel	Jun-17	Dec-17	\$ 14,992	320100	\$ 14,992
46	1005073	SCW WP1 Sludge Mixer Cone	DIV108-222 PARTS FOR VAUGHAN PUMP CONE, FOR TRITON SCREW PUMP-Replace damaged Sludge Mixer Cone at Sun City West Water Plant 1	Sep-17	Nov-17	\$ 2,358	320100	\$ 2,358
47	1005075	SCW WP1 Jet Mixer Pump Repair	1 2K179 8-3/8" Sii-Brass Impeller 1 4K268 Front wear ring 4K266 Back wear ring 1 SK155 0-Ring 1 10K16 Mechanical Seal Carbon/Ceramic/Buna-Replace damaged sludge mixer cone (sidewall leaking) at Sun City West Water Plant 1	Sep-17	Dec-17	\$ 1,597	320100	\$ 1,597
48	1005114	17 SCW Wonderware Update	Upgrade two and add two new Wonderware user licenses and add to support contract, to support increased data visibility in SCADA displays, migration to supported version of software, and additional remote users.	Sep-17	Dec-17	\$ 17,742	340300	\$ 17,742
49	1005129	SCW WP1 Crtel Sp TKMPump/Motor	Replace TKM Pump KM102P46-Mechanical Diaphragm Pump 11.1 GPH capacity/TKM motor 1/2 HP 1800 htz 3 phase cface-footless-Replace malfunctioning pump and motor at Sun City West Water Plant 1	Sep-17	Nov-17	\$ 2,420	311200	\$ 2,420
50	1005240	17 BP4 Pump Repl & Mtr Repairs	ITI-AC 8100 8 X 8 X 17, CIBF Horizontal Split Case Pump US Electric 75 Hp, 1750 RPM, 404TS Motor Repair SCW WP1Tim ken QF50 Coupling BaseTek 76" X 26" X 4.5 Zanite Base-Booster Pump 4 Pump Replacement and Motor repairs	Oct-17	Dec-17	\$ 17,163	311200	\$ 17,163
51	1005850	17 SCWWP1 Mixer Pumps	Goulds 3756 8BF1-1/2x2x10 CIBF Frame Mounted 8-3/8" Impeller Trim Centrifugal Pump 8-3/8" Impeller Carbon/Sil-Car/Viton Mechanical Seal SCW WP1 Jet Mixer Pumps from Willing-Replacement pumps for older pumps which are worn and intermittently failing.	Dec-17	Dec-17	\$ 5,920	311200	\$ 5,920
52								
53								
54	<b>TOTAL</b>					\$ 1,829,742		\$ 1,829,742