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BEFORE THE ARIZONA CORPORATION COMMISSION

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2009 APR 15 P 1:33

AZ CORP COMMISSION  
DOCKET CONTROL

IN THE MATTER OF THE APPLICATION OF ARIZONA-AMERICAN WATER COMPANY, AN ARIZONA CORPORATION, FOR A DETERMINATION OF THE CURRENT FAIR VALUE OF ITS UTILITY PLANT AND PROPERTY AND FOR INCREASES IN ITS RATES AND CHARGES BASED THEREON FOR UTILITY SERVICE BY ITS SUN CITY WATER DISTRICT.

DOCKET NO. W-01303A-07-0209

DECISION NO. 70351

NOTICE OF COMPLIANCE FILING

In compliance with Decision No. 70351 Arizona-American Water Company hereby files the attached Sun City Non Revenue Water report.

RESPECTFULLY SUBMITTED on April 15, 2009.

Christopher D. Krygier  
 Regulatory Compliance Analyst  
 Arizona-American Water  
 101 Corporate Center  
 19820 North 7<sup>th</sup> Street, Suite 201  
 Phoenix, AZ 85024  
[Christopher.Krygier@amwater.com](mailto:Christopher.Krygier@amwater.com)  
 623-445-2494

Arizona Corporation Commission

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1 Original and 13 copies **filed**  
2 on April 15, 2009, with:  
3  
4 Docket Control  
5 Arizona Corporation Commission  
6 1200 West Washington  
7 Phoenix, Arizona 85007  
8  
9 Copies of the foregoing **emailed**  
10 on April 15, 2009 to:  
11  
12 Brian K. Bozzo  
13 Compliance and Enforcement Manager  
14 Utilities Division  
15 1200 West Washington Street  
16 Phoenix, AZ 85007

**Arizona American Water  
Sun City District Water Loss Compliance Report  
April 9, 2009**

**Introduction**

Actual 2008 Sun City Water “non account water” was 10.9%. (See attached excerpts from 2008 ACC Annual Report, page 12 Sun City). Non account water increased from 8.3% in 2007 to 10.9% in 2008. The primary reason for the increase in 2008 was an open valve at an interconnection to a neighboring municipal utility which was subsequently closed following this discovery during an inspection.

ACC Decision No. 70351 requires the Company to prepare a plan to reduce water loss to 10% or alternatively to prepare an analysis of why it is not feasible to reduce water loss to 10%.

What follows is the Company’s plan to reduce non account water to below 10% with a plan target date for achieving this reduction of calendar year 2009.

**Plan**

The efficient production, distribution and operation of Arizona American Water systems are critical to the success and leadership position of the Company. Minimization of non-revenue water is a key component of success. Arizona American employs water auditing as a routine business practice using a method that has clearly defined terms and meaningful performance indicators. The Non-revenue Water (“NRW”) program assists the Company in indentifying where water losses are occurring and also expresses, by volume and percentage, how much water is lost.

For the purposes of this compliance report, NRW is defined as all water produced minus all water sold. The difference between water produced and sold is NRW. The Commission uses a similar formula but calls its calculation “Non Account Water”.

The Sun City water system is comprised of nearly 23,000 water customers being served through more than 306 miles of water mains. Our experience with acoustic leak detection as well as a 1995 study by the City of Phoenix tells us that nearly all leaks in our service areas rise to the surface and are physically detected very quickly. Because water tends to rise to surface quickly in the Sun City service area, our immediate focus on resolving the NRW variances is concentrated on production reporting and billing accuracy.

**Non-revenue Water Program**

The NRW program was supplemented in April 2009 with the launch of a NRW Committee whose purpose is to solve NRW variances. This Committee is made up of 10 supervisory and managerial persons with the experience and knowledge to investigate and resolve water loss issues.

Below is the Arizona American Water NRW formula and component definitions.

**The Formula:**

<b>Operand</b>	<b>Description</b>	<b>Acronym</b>
+	Net System Delivery	(NSD)
-	Net Water Sales	(NWS)
=	Non-revenue Water	(NRW)
-	Authorized Unbilled Consumption	(AUB)
=	Actual Water Losses	(AWL)
-	Measured Leaks/Tank Overflows	(LTO)
=	Unaccounted-for-water	(UFW)

Our primary focus is to reduce the variance between net system delivery (NSD) and net water sales (NWS) as non-revenue water (NRW) to a level below ten percent. Although there are many uses that are

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authorized and unbilled (AUB), i.e. main flushing, fire fighting, water re-used back in the treatment process, etc., we believe those components below the NRW line are not significant enough to be our primary focus at this time. Because there are no apparent leaks in the distribution system, we believe our concerted focus on accuracy of system delivery and sales values will provide the most and best results.

Arizona American Water is committed to implementing best management practices to minimize and reduce lost and unaccounted for water. Our effort is being driven not only by the emphasis on water conservation, but also for economic reasons. Some of the components of unaccounted-for water (UFW) include meter inaccuracies, undocumented main flushing, undocumented unmetered water use, and undocumented water leakage. Past and present programs have addressed the areas of meter accuracy and unmetered water use. The following paragraphs detail the Company's plan activities to mitigate water loss in its Sun City water system.

**Production Meter Testing**

Arizona American reinstated its program to test and calibrate each production meter in its Sun City service area on an annual basis. The first component of any good NRW program is to be certain that you are reporting the amount of water you are producing correctly, and our concentrated efforts in this area to test and calibrate production meters and identify meters that require repair or replacement is the foundation upon which further efforts are built. Arizona American Water has commenced this program and by the end of April 2009, all the Sun City water production meters will be tested, calibrated and/or repaired/replaced. This ongoing program will be repeated each year.

**Periodic Sales Meter Change-Outs**

Arizona American Water has a periodic meter change-out program that replaces meters aged 15 years and older in its Sun City water service area. Based on our internal testing and industry publications, we recognize that meters tend to under register water sales as they age. A new or replacement meter improves accuracy of reported water consumption. This is an ongoing activity and 1/15<sup>th</sup>, or 6.67%, of all meters in the Sun City service area are scheduled to be replaced each year under a 15 year replacement timetable. Under this program, the oldest meters in the Sun City water district will be changed out first. At the conclusion of the initial 15-year period, each meter will be replaced on an ongoing basis when their age reaches 15 years old. In addition, manual read meters are being replaced by automated radio read meters at the time of their change out.

**Large Sales Meter Testing**

Each year, Arizona American Water will test all customer sales meters sized 3-inch and larger in its Sun City service area beginning in the second quarter of 2009. Since inaccuracies in these large meters could create a large component of under-reporting of sales, these sales meters will have annual testing and recalibration, rather than being included in the 15 year replacement timetable for smaller meters.

**Automatic Meter Reading**

Automatic Meter Reading ("AMR") is the remote collection of consumption data from customers' water meters using telephony, radio frequency, power-line and satellite communication. Arizona American began implementation of a new AMR program in 2008 in which its meters replaced under the periodic meter change-out program and other meters needing replacement (i.e. stuck and damaged meters) are replaced with meters with AMR transmitters installed in them. The program's goal is to ensure 100% accuracy of each meter read, and to increase the productivity of the meter reading work force.

Arizona American historically used direct read meters that required each water meter to be manually read by a meter reader each month. Under this program, Arizona American Water will upgrade to new encoder (AMR) meters with radio frequency technology that are read with a vehicle-mounted automatic

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data collection system, allowing the Company to increase its meter read accuracy and efficiency, reductions in estimated bills and administrative adjustments, and a decrease in the number of special reads (repeat visits). The AMR program should also increase consumption accuracy which directly affects the NWS component of the NRW calculation. The program was launched in 2008 and in 2009, 1,548 meters are planned to be replaced with the AMR style of meter.

**Minimize Well Flushing to Waste**

For a variety of operational reasons, water from our groundwater wells is pumped to waste for a period of time before it is directed into the distribution system for delivery to our customers. In 2008, our well flushing procedure was changed to reduce the time water was flushed to waste in an effort to improve water conservation and authorized unbilled consumption (AUB). This change will increase the amount of water that is produced that can be delivered to customers.

**Employee Incentive Program**

Recognizing that employees are the Company's "eyes and ears" to our systems and our customers, Arizona American Water initiated the following program to reduce water loss, prevent unnecessary repairs, and promote system security. The Recovered Water Incentive Program was designed to encourage employees to identify and report incidents of water theft or water loss. Employees are encouraged to question contractors or others working in areas served by Arizona American Water and who might be taking water from hydrants or other unmetered locations. While employees are encouraged to be inquisitive, they are told to not put themselves in a situation where their personal safety is at risk.

Program Specifics: Up to four \$25 gift certificates are awarded each month to employees who find and report incidents of water theft, tampering or vandalism involving Arizona American Water equipment (including meters) or facilities, or illegal or undocumented services or hook-ups. If an employee reports an unauthorized customer hook-up to a hydrant or an inactive account with consumption, he/she is eligible to receive a \$25 gift card.

**Internal Data Consistency**

Customer billing issues may also affect non revenue water. Company employees are working to ensure that internal data sources are used consistently and those inconsistencies are researched and corrected. This generally involves verifying meter sizes, verifying the application of the correct tariff, verifying the number of meter dials coded in the billing system, and verifying that the correct district / system ID / meter route fields are used. For example, if a meter has more reading dials than is coded into the billing system, then the meter reader could under-read the meter. If the customer account is coded to a tariff for an incorrect geographic area or is coded to an incorrect district /system ID / meter route, this can result in water sales attributed to one district while water production is attributed to another district, thereby causing an understatement of NRW in the former district and an overstatement of NRW in the latter district. This is an on-going activity being enhanced through additional system reporting which more easily highlights inconsistencies.

**Acoustic Leak Detection**

Our previous efforts to detect and mitigate water leaks have included water audits including two leak detection surveys employing mobile acoustic technology. One investigation included a leak survey completed in December 2000 in the Sun City service area. This survey identified 9 leaks out of 669 points investigated. The 9 leaks consisted of a hydrant valve not shut-off completely; loose fittings inside meter boxes; some water services which required repair; and a leaking main line valve. The leak survey consultant's final conclusion was that this system had little potential for water loss through leakage at that time. There was also a Sun City service area leak survey completed in February 1993, which identified 21

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leaks out of 1780 points investigated. That investigation report concluded that undetected leaks were not a significant area for improvement to the distribution system efficiency at that time.

Permanent leak detection technology could be useful in the future to maintain low lost and unaccounted for water ("UFW") percentages. This would be especially relevant as the cost of water increases or as the level of UFW increases as the systems age. Arizona American has researched the use of one type of permanent leak detection technology – MLOG – when we made the decision to convert to AMR meters. The MLOG technology consists of an array of intelligent sensors that detect water leaks in the water distribution system. These wireless devices tie into the local AMR network and record vibration (leak) levels at the same time every night. By analyzing changes in relative vibration levels, technicians can locate areas that leaks might be occurring. While individual devices are not particularly expensive, the deployment of a large array of them in a distribution system can become costly. Because past acoustic leak detection surveys has shown very few leaks, and because most leaks surface and are detected quickly, we feel that the best use of our resources at this time are to concentrate on better accounting for water through meter testing and replacement, and identifying and accounting for other unmetered uses. In the mean time, we continue to monitor this technology including its current application at Pennsylvania American Water which was experiencing NRW levels in excess of 25%.

**Plan Summary**

At present, all of our Sun City production meters are undergoing testing and/or calibration. Shortly, all our large customer meters, 3-inch and above will also go through testing and/or calibration. Concurrently, water sales data is being analyzed to identify and correct any variances or inconsistencies. Field personnel and supervisory staff are analyzing drawings to determine potential spots in the distribution system that are interconnected to other water service providers (inter-connects) to ensure that they are closed or metered. In addition, billing queries are being run with exception criteria to validate that accounts are being billed correctly and that the sales are attributed to the correct water district.

Supervisory staff is reviewing construction projects which occurred over the last five years and to ensure that all projects are correctly metered and set up in the billing system. Arizona American staff is also verifying that all "in plant" usages are correctly metered and accounted for. The Arizona American Water NRW Committee is reviewing as-built water distribution system plans to evaluate whether there are additional unmetered inter-connections with neighboring water providers. Based on this exercise, we recently identified an open inter-connect with a neighboring municipal water utility which has been closed. We are in the process of quantifying the volume of water that went to that other utility. While we have not yet quantified the volume of water yet, we believe the inter-connect was open during all of 2008 and has the potential to be a large contributor to our non account water loss for 2008.

**COMPANY NAME**

Arizona American Water Company (Sun City 07-099)

**WATER USE DATA SHEET BY MONTH FOR CALENDAR YEAR 2008**

MONTH	NUMBER OF CUSTOMERS	GALLONS SOLD (Thousands)	GALLONS PUMPED (Thousands)	GALLONS PURCHASED (Thousands)
JANUARY	23,014	285,813	291,977	
FEBRUARY	22,987	251,362	279,582	
MARCH	23,002	266,997	367,144	
APRIL	22,996	311,557	397,818	
MAY	23,005	372,044	474,373	
JUNE	22,999	433,540	514,368	
JULY	22,981	466,447	536,322	
AUGUST	22,969	481,461	516,762	
SEPTEMBER	22,955	440,319	416,008	
OCTOBER	22,944	354,599	473,125	
NOVEMBER	22,927	418,967	438,376	
DECEMBER	22,935	360,072	283,547	
TOTALS ->		4,443,178	4,989,402	0

What is the level of arsenic for each well on your system. \_\_\_\_\_ mg/l  
 (If more than one well, please list each separately) - See attached

If system has fire hydrants, what is the fire flow requirement? \_\_\_\_\_ GPM for \_\_\_\_\_ hrs

If system has chlorination treatment, does this treatment system chlorinate continuously?  
 Yes       No \*With the flow of the wells feeding the treatment system

Is the Water Utility located in an ADWR Active Management Area (AMA)?  
 Yes       No

Does the Company have an ADWR Gallons Per Capita Per Day (GPCPD) requirement?  
 Yes       No

If yes, provide the GPCPD amount: \_\_\_\_\_ 253\*

\*Estimate

Arizona American Water  
Central Division - Sun City Water District  
Unaccounted For Water - 2008

Description	Quantity of Water (Kgal)												
	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	TOTAL
<b>Production</b>													
Water Treatment	282,149	280,244	367,159	399,180	474,428	515,741	536,422	518,276	418,042	473,325	438,472	283,706	4,997,145
Purchased Water													0
In-Plant Usage	(10)	(8)	(5)	(7)	(8)	(10)	(7)	(8)	(9)	(5)	(8)	(9)	(94)
Mixing Chemicals - Field	0	0	0	0	0	0	0	0	0	0	0	0	0
Well Pumped Waste	(162)	(654)	(10)	(1,355)	(47)	(1,363)	(93)	(1,506)	(2,025)	(186)	(68)	(150)	(7,649)
<b>Net Production</b>	<b>281,977</b>	<b>279,562</b>	<b>367,144</b>	<b>397,818</b>	<b>474,373</b>	<b>514,368</b>	<b>536,322</b>	<b>516,762</b>	<b>416,068</b>	<b>473,125</b>	<b>438,378</b>	<b>283,547</b>	<b>4,989,402</b>
<b>Sales</b>													
Residential	226,804	205,121	213,175	236,769	291,396	337,613	368,711	383,079	342,279	271,685	334,435	291,087	3,502,164
Commercial	53,022	42,705	46,257	52,818	56,168	68,853	68,321	76,042	71,514	62,422	60,824	58,160	716,906
Industrial	787	328	297	328	317	284	293	317	330	339	384	269	4,242
Fire Service													0
OPA													0
Resale													0
Miscellaneous	5,200	3,210	7,288	21,641	25,163	26,780	28,162	22,023	28,196	20,153	23,524	9,546	219,866
<b>Total Sales</b>	<b>285,813</b>	<b>251,362</b>	<b>286,987</b>	<b>311,557</b>	<b>372,044</b>	<b>433,540</b>	<b>466,447</b>	<b>481,461</b>	<b>440,319</b>	<b>354,599</b>	<b>418,967</b>	<b>360,072</b>	<b>4,443,176</b>
<b>Total Non-Revenue Water</b>	<b>6,164</b>	<b>28,220</b>	<b>100,147</b>	<b>86,261</b>	<b>102,329</b>	<b>80,828</b>	<b>69,875</b>	<b>35,301</b>	<b>(24,311)</b>	<b>119,525</b>	<b>19,409</b>	<b>(76,525)</b>	<b>546,224</b>
<b>Ratio Non-Revenue Water</b>	<b>2%</b>	<b>10%</b>	<b>27%</b>	<b>22%</b>	<b>22%</b>	<b>16%</b>	<b>13%</b>	<b>7%</b>	<b>-6%</b>	<b>25%</b>	<b>4%</b>	<b>-27%</b>	<b>10.95%</b>
<b>Authorized Unbilled/Consumption</b>													
Flushing Mains	0	0	0	0	0	0	5	22	7	0	0	0	34
Identified Fire Usage	0	0	0	0	0	0	0	0	0	0	0	0	0
Vandalism	0	0	0	0	0	0	0	0	0	0	0	0	0
Street Cleaning	0	0	0	0	0	0	3	0	0	6	3	20	32
Drainage Storage Tanks	650	300	0	0	0	0	0	0	0	0	0	0	950
Online Analyzers & Chlorinators	0	0	0	0	0	0	0	0	0	0	0	0	0
Field Meter Testing	1	1	1	1	1	1	1	1	1	1	1	1	12
Fire Hydrant Maintenance	10	0	0	10	80	0	0	0	0	0	7	2	109
Flushing Sewer Mains	0	0	0	0	0	0	0	0	0	13	0	0	13
<b>Total Water Losses</b>	<b>661</b>	<b>301</b>	<b>1</b>	<b>11</b>	<b>81</b>	<b>1</b>	<b>9</b>	<b>23</b>	<b>8</b>	<b>20</b>	<b>11</b>	<b>23</b>	<b>1,150</b>
<b>Ratio Unbilled &amp; Authorized vs Produced</b>	<b>2%</b>	<b>10%</b>	<b>27%</b>	<b>22%</b>	<b>22%</b>	<b>16%</b>	<b>13%</b>	<b>7%</b>	<b>-6%</b>	<b>25%</b>	<b>4%</b>	<b>-27%</b>	<b>10.92%</b>
Identified Leakage	916	900	950	822	916	988	770	802	757	6,022	19	662	14,532
Tank Overflows	42	28	41	12	0	0	14	18	0	0	0	0	155
<b>Unaccounted For Water</b>													
Gallons	4,545	26,991	99,155	85,416	101,332	79,831	68,082	34,458	(25,076)	112,484	19,379	(77,210)	530,387
Percentage	1.56%	9.65%	27.01%	21.47%	21.36%	15.52%	12.88%	6.67%	-6.03%	23.77%	4.42%	-27.23%	10.63%

Negative numbers indicate quantity or percentage above production or 100%

Unaccounted Water 2008 Sun City

- 1 (a) Per Commission Rule AAC R14-2-403B
- 2 (b) Per Commission Rule AAC R14-2-409D

3 IT IS FURTHER ORDERED that Arizona-American Water Company shall notify its Sun  
4 City Water District customers of the revised schedules of rates and charges authorized herein by  
5 means of an insert, in a form acceptable to Staff, included in its next regularly scheduled billing.

6 IT IS FURTHER ORDERED that the request to implement the FCRM is denied.

7 IT IS FURTHER ORDERED that Arizona-American Water Company shall file a rate case for  
8 its Sun City Water District no later than June 30, 2012.

9 IT IS FURTHER ORDERED that if water loss for Arizona-American Water Company's Sun  
10 City Water District at any time before the next rate case is greater than 10 percent, the Arizona-  
11 American Water Company shall devise a plan to reduce water loss to less than 10 percent, or prepare  
12 a report containing a detailed analysis and explanation demonstrating why a water loss reduction to  
13 10 percent or less is not feasible or cost effective.

14 IT IS FURTHER ORDERED that Arizona-American Water Company may use its annual  
15 report to track water loss, as long as water usage data is reported on a individual system basis in the  
16 annual report.

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