City of Airway Heights

CONSERVATION PROGRAM, WATER RIGHT ANALYSIS, SYSTEM RELIABILITY AND INTERTIES

A. CONSERVATION PROGRAM DEVELOPMENT AND IMPLEMENTATION

The City of Airway Heights is implementing a water conservation plan as part of this Plan. The City has set a target goal to reduce water usage by 5%. The City's water conservation plan has been included in Appendix C. Below is a brief summary of some recommended provisions that should be included in this plan.

1. Required Measures for All Systems

All water systems are required to implement two conservation measures. These include: 1) source meter installation; and 2) program promotion. The City has accomplished both of these measures. All operating City wells are metered. Meters are read daily and daily use is recorded. The City also distributes water conservation measures to its customers and promotes conservation through its newsletter publication.

2. Other Measures and Level of Implementation

In addition to the required conservation measures, the City has also implemented the following recommended conservation measures:

a. Technical Assistance:

Customer Assistance - The City currently provides both assistance and information to its customers that describes and encourages water conservation.

b. System Measures:

Service Meters - All City services are currently metered. Meters are required for all new service connections. Service meters are monitored for inconsistencies and are routinely maintained to insure accurate flow measurement.

Unaccounted Water/Leak Detection - Total water production recorded by meters at the City wells is compared to the total water sold as recorded by service meters on an annual basis to determine unaccounted for water.

The City also has an aggressive water system replacement policy that provides for replacement of distribution mains and services that have aged beyond their useful life. Over the past five years the City has replaced many inadequate 4-inch and 6-inch water mains and completed a large diameter main loop of the southwest portion of the system.

c. Incentives/Other Measures:

The City does not offer any incentives at this time for promoting water conservation.

3. Conservation Program Outline

An outline for the City's Conservation Plan is included in the appendices of this plan. The general outline of this plan is summarized below:

a. Water Use Data Collection Requirements

1) Data collection
2) Monitoring and reporting
3) Historical records

b. Water Demand Forecast

1) Growth projections
2) Demand forecasting
3) Demand impacts from conservation

c. Conservation Objectives

d. Evaluation of Conservation Measures

e. Identification of Selected Conservation Activities

1) Description
2) Schedule
3) Budget
4) Monitoring
5) Target water savings projections

B. SOURCE OF SUPPLY ANALYSIS

As the water rights become increasingly more difficult to obtain, the City of Airway Heights and most other water purveyors must look at alternatives to minimize the need to increase water supply. The primary methods of reducing demand are to encourage more efficient use of the water and to discourage excess use. This is accomplished through conservation, integrating water rights, sharing water through interties, water reuse, and structuring rates to penalize large water users. These measures are briefly discussed below.

1. Enhanced Conservation Measures

The City is in the process of implementing a water conservation plan as part of this water plan. A copy of this plan is included in Appendix C. The City has set a target goal of reducing water usage by 5 percent

2. Water Right Changes

The City currently has applications pending with the Department of Ecology to "integrate" their water rights for all of the City's wells and to change the existing Park West Well water

right from industrial use to domestic use. This is discussed in more detail later in this chapter.

3. Interties

At this time the City has one intertie agreement with the City of Spokane. Under terms of the agreement between the City's of Spokane and Airway Heights a maximum of 1,500 gpm may be utilized by the City of Airway Heights. The City of Spokane reserves the right to preempt this allotment should Spokane's needs become critical. Therefore, it is important that the City of Airway Height not become too dependent upon this source of water.

The only other purveyor in the vicinity of the City's water system is the Four Lakes Water District. At this time, there are no plans to connect the systems.

4. Use of Reclaimed Water, Reuse and Other Non-Potable Sources

The City of Airway Heights, by agreement with the City of Spokane, transfers its raw sewage to the COS wastewater plant for treatment, therefore use of reclaimed water is not feasible. The City requires all businesses and residents inside the City Limits to connect to the City water system. Therefore, private wells are not allowed inside the City limits.

C. WATER RIGHTS AND PERMIT EVALUATION

In order to provide more flexibility in allowing the City to withdraw more water from a particular well than is currently allowed by its respective water right claim, the City is in the process of integrating all of its water rights. This was done previously in 1982 when the right for Well 1 was modified to include Wells 2, 3 and 4 as additional withdrawal points. The City does not have a separate water right for Well No. 7. Temporary permission was granted for using Well No. 7 when the well was constructed. However, the City must still secure a water right for this well.

The City submitted applications with the Department of Ecology to "integrate" their water rights for all City wells in 1997. After reviewing the City's request, DOE determined that it could only approve the changes if the instantaneous capacity allowed in the water rights was reduced to 770 gpm, which was the total capacity of the wells in 1997. DOE would not issue water rights for more than the capacity of the wells. Therefore, they recommended that the City work to fully develop the existing water capacity allowed under the existing water rights before resubmitting a request to integrate the water rights.

With the purchase of the Park West Well and its estimated production capacity of 1,000 to 1,400 gpm, the City is now capable of fully utilizing its existing water rights. Therefore, the City resubmitted their application in June 2001 to integrate all of its water rights with each well as a point of withdrawal for each water right. The City has also requested a change in the designation for the existing Park West Well water right from industrial use to domestic use.

The total existing water rights, including the COS intertie allotment, for the City exceeds both the annual and instantaneous production requirements with current (2000) water consumption. The addition of the Park West Well and its water right will provide the City sufficient water

rights for instantaneous use until approximately 2011 if the City continues to rely heavily upon the COS intertie (See Table II-9). The City would like to reduce its dependence upon the COS intertie due to limitations in the interlocal agreement which were previously discussed in more detail in Chapter 2. In order for the City to minimize its dependence upon the COS intertie, The City will need to begin evaluating alternatives for increasing its water rights and water supply as soon as the Park West Well is on-line in 2002.

TABLE IV-1
EXISTING AND FORECASTED WATER RIGHTS STATUS

Withdrawal Point	DOE Water Right	Date of Issue	Existing Water Rights		Existing Average Consumption	
			Annual Avg Use (Acre-ft/yr) Qa	Instantaneous Use (gpm) Qi	2000 Annual Use (Acre-ft/yr) Qa	Pumping Intake (gpm) Qi
Well No. 1[1]	G3-26657	09/04/80	800	500	238.4	177
Well No. 2	G3-26657	09/04/80	Inc. Above	Inc. Above	-	
Well No. 3	G3-26657	09/04/80	Inc. Above	Inc. Above	18.8	
Well No. 4[1]	6321-A/ G3-26657	01/21/69	224	350	359.8	271
Well No. 5	G3-27427 G3-23465C	12/21/82 12/27/74	102 2	65 Inc. Above	15.6	65
Well No. 7	None	-	-	-	43.5	
Park West [2]	G3-29249P	2/13/95	1,200	1,400	0	1200(Est.)
COS Intertie	n/a	-	-	-	319.6	1500
Total Existing Water Rights/Consumption (2000)			2,328	2,315	995.7	1,713
Total excess/(deficiency) in Water Rights (2000) using Park West Well					1332.3	602
Total Forecasted Consumption (2007)					1,530	3,313
Total excess/(deficiency) in Water Rights (2007) using Park West well					798	(998)
Total Forecasted Consumption (2021)					2,149	4,655
Total excess/(deficiency) in Water Rights (2021) using Park West well					179	(2340)

Notes:
1) Wells No. 1 & No. 4 are classified as a well field.
2) The City is in the process of transferring the Water Right for the Park West Well to the City.
3) Deficiency estimates DO NOT includes use of COS intertie. Add 1,500 gpm to Qi to determine available capacity with COS intertie
4) Wells #3 and #7 are no longer operational due to yield and water quality problems.

D. WATER SUPPLY RELIABILITY ANALYSIS

1. Source Reliability

The City's major production wells, No. 1 and 4, have provided the City with a moderate quantity of good quality drinking water. These wells draw water from the West Plains aquifer, which is typically capable of providing low to moderate volumes of good quality water. As described earlier in this report, the Spokane-Rathdrum Prairie Aquifer does not extend under the West Plains and high producing wells are not very common.

The City has experienced various operational problems with some of its other wells. Well No. 7 has not been able to produce the volume that was originally expected. In the summer of 2001, the City removed the pump to inspect the well and found that the well had run dry. The City is currently reviewing its options with regard to this particular well.

Well No. 3 has experienced Nitrate concentrations exceeding the trigger level for the past few years. Unfortunately in summer 2001, the well had a Nitrate concentration exceeding the MCL. At this time, the City has stopped operating the well while it evaluates its options.

Well No. 5 had been experiencing a steady decreasing yield over the past few years and was recently only producing approximately 5 gpm. The City inspected the well in summer 2001 and found a heavy calcification buildup on the well screen. The well was rehabilitated to remove the calcification and is now yielding approximately 65 gpm.

At this time, the City only has one backup generator at Well No. 7 and the 1 MG reservoir for use during an extended power outage. Due to the operational problems at Well No. 7, this does not leave the City with a usable water source during a power outage. None of the City's other water sources has a backup generator at this time. However, as part of the development of the Park West Well, the City will be installing a generator to operate the well during a power outage.

2. Water Right Adequacy

After approval of the applications to integrate the City's water rights and modify the Park West Well water right for municipal use, the existing water rights will be adequate to allow pumping of all of the City's wells simultaneously. With the COS intertie capacity, this will be sufficient to meet projected instantaneous water demands until approximately 2011 and the annual water usage through 2021.

3. Facility Reliability

As described in Section C - System Description and Analysis of Chapter 3 of this plan, the City's distribution system is generally adequate to meet projected water demands through the 20-year planning period. Some system deficiencies were determined and are discussed in Chapter VII of the plan.

4. Water Shortage Response Planning

Water shortages for reasons other than emergency situations are a possibility with the City's current status. While the City has secured use of the COS intertie, The City of Spokane reserves the right to cut-off Airway Heights if its own demands exceed supply. A draft Water Shortage Response Plan has been prepared and is included as Appendix L of this Plan. Shortages as a result of emergencies are addressed in the City's Emergency Plan.

5. Monitoring Well Levels

The City's main well sources (Wells, 1, 4, 5 &7) are equipped with an air line for monitoring water levels in the wells. Water levels are currently read on the 1st and 15th of each month. Comparisons are made to previous monthly readings to identify any major change in groundwater levels.

The City will continue this monitoring program. One addition planned to the telemetry system is the capability to monitor the water levels from the master site. When this is accomplished, trending data and historical reporting will be automatic. Any dramatic changes to static water levels will be reported to the Manager and engineer immediately for evaluation.

Pump drawdown and well recharge will also be monitored and timed on an annual basis. Changes in these measurements could indicate screen clogging, declines in the aquifer's ability to recharge the well, or other conditions.

E. INTERTIES

The City currently has one existing intertie with another purveyor. This intertie is described in more detail in Section C of Chapter 1 of this plan. There are currently no plans for future interties for reasons discussed in Section B of this chapter.