ATTACHMENT J3

Wright-Patterson AFB Water Distribution System

TABLE OF CONTENTS

LIST OF TABLES

J3 Wright-Patterson AFB Water Distribution System

J3.1 Wright-Patterson AFB Overview

Wright-Patterson Air Force Base (WPAFB) is located in Montgomery and Greene Counties, in the northeast portion of the Greater Dayton, Ohio area. The communities of Dayton, Riverside, Fairborn, and Huber Heights border this Base, which encompasses 7,198 acres plus 431 acres of easement or permits for a total of 8,145 acres of land. WPAFB is also an integral part in the multi-county region (Miami, Montgomery, Greene, and Clark Counties), serves as the largest single-site employer in the region, and provides employment and economic benefits to an area of nearly one million people.

J3.1.1 Installation History

The history of WPAFB begins with, and is still closely related to the legacy of Wilbur and Orville Wright. The Wright Brothers' early aviation accomplishments occurred at Huffman Prairie Flying Field, which is located off of the end of Runway 23, and is marked to commemorate their flying achievements. Today the influence of the Wright Brothers remains evident, as WPAFB is still a strong leader in both military aviation research and development.

Aviation research and development began to occur during the World War I era. In 1917, Wilbur Wright Field was established as a pilot training school, and McCook Field (near the intersection of State Route 4 and Interstate 75) was established as an air service engineer center. Following World War I, McCook Field outgrew its facilities and required a more permanent home. In 1924 the City of Dayton donated over 4,500 acres of land for the construction of an aerodrome and new research facilities. This area makes up much of what is WPAFB today.

During World War I, WPAFB began its involvement in the field of logistics. This occurred with the establishment of the Fairfield Aviation General Supply Depot, which was located adjacent to Wilbur Wright Field. The depot became known as the Fairfield Air Depot, and served as a major Army Air Corps depot through the end of World War II. Central control for the entire Air Force depot system evolved at WPAFB, forming today's modern logistics network.

In 1931, Wilbur Wright Field, Fairfield Air Depot, and Huffman Prairie were renamed Patterson Field, in honor of Lt. Frank Stuart Patterson, who died while flight testing machine gun synchronization technology. The fields were officially merged and were permanently designated as Wright-Patterson AFB on 13 January 1948. At that time the 2750th Air Base Wing assumed the host organization duties for the Base.

The 2750th remained the host organization until 1992, when the Aeronautical System Center assumed the host duties. The 2750th was redesignated as the 645th Air Base Wing then redesignated again in 1994 as the 88th Air Base Wing (88 ABW).

Today, WPAFB serves as the site for the conception, testing, modification, and re-testing of weapon systems. Using this technology, the Base has assured the Air Force "that it will continue to be the most responsive deterrent force in the history of aviation."

J3.1.2 Physical Assets

Facilities at the Base encompass a runway, associated taxiways and parking aprons, administrative areas, industrial facilities, testing/developmental laboratories, dormitories, hospital, housing areas, recreational facilities, and open space. The overall land/facility profile of WPAFB AFB is shown in the following table.

Installation Assets	
Land Area (fee-owned)	7,198 Acres
Easements/ROWs	431 Acres
Buildings	850; 16,090,677 SF
Military Family Housing	2,249 Units; 3,839,212 SF

WPAFB is comprised of several geographic areas, generally referred to as Areas A, B, and C. The smallest of the three main areas is Area A. This area runs along the north side of Highway 444 between Gates 16A and 9A. It includes the hospital, headquarters complex, and three housing areas (Brick Quarters, Pine Estates, and Green Acres). Area B is the area on the south side of Highway 444, formerly known as Wright Field. It includes the Air Force Museum and the Prairies and Woods housing areas. Area C is by far the largest area and was formerly known as Patterson Field. It includes the active airfield and most of the Base facilities and flying activities. Area C also includes two sub-areas: Kitty Hawk Center and the West Ramp. Kitty Hawk Center is a small triangular plot east of Highway 444 and just south of the City of Fairborn that contains the community support complex and a high temperature hot water (HTHW) plant. The West Ramp area is on the northwest side of Area C and includes all facilities on the northwest side of the main runway.

WPAFB is all fee-owned, including two GSUs. There have been approximately 85 fee acquisition transactions (20 for Areas A and C and 65 for Area B) over the last 80 years ranging in size from a fraction of an acre to over 4500 acres.

For the utility systems, the AF has been granted many easements and rights-of-way (ROW), some by Government agencies, some by private entities.

J3.1.3 Mission, Organization, and Associate Units

The U.S. Air Force (USAF) mission is continually evolving at WPAFB as research continues towards "faster, higher, farther, and safer" flight. Missions at the Base include acquisition, logistics management, research and development, education, flight operations and many other activities that prove to play a crucial role in the nation's defense.

- The Aeronautical System Center (ASC) is the host organization at WPAFB. The organization is comprised of the Acquisition Force, the 74th Medical Group, and the 88th Air Base Wing. Together these units create the "Aerospace Research and Acquisition Center of Choice, the Birthplace, Home, and Future of Aerospace." The primary mission

of ASC is systems acquisition, which is accomplished through the development and acquisition of state-of-the-art combat-ready aeronautical weapons and related support systems for USAF operation commands. Every fighter, bomber, cargo, and trainer aircraft in the USAF inventory were developed at ASC, as well as all but one reconnaissance aircraft. The ASC also maintains the vision, "to lead the world in the development of flight; to advance the air and space dream; and to support the vision, mission, goals, and objectives of the USAF."

- There are several missions managed by ASC's Acquisition Force, Air Base Wing, and Medical Group. The primary missions and responsibilities of these groups include streamlining the acquisition process while strengthening strategic and conventional forces, expanding airlift capabilities, and modernizing and expanding the combat forces. The Acquisition Force manages the development and acquisition of aeronautical systems, and oversees complex strategic and tactical programs. The Air Base Wing is responsible for operations, and supports activities serving all ASC organizations and associate units. The Wing manages over 8,000 acres of land and approximately 1,600 facilities. The Medical Group offers comprehensive health and dental care in more than 52 specialties for active duty and retired military personnel, and their families. The WPAFB Medical Group is also recognized for operating the second largest medical facility in the USAF.

Over 60 associate units are currently housed at WPAFB. These organizations represent a variety of critical Department of Defense (DOD) activities. The following is a summary of major associate organizations that reside at WPAFB and their primary responsibilities.

- The Air Force Material Command (AFMC) is headquartered at WPAFB and has been associated with WPAFB since 1917. The command serves as the organization responsible for the management of weapon systems. Their mission involves building and sustaining military systems throughout their service life. This is accomplished through the management of research, development, testing, acquisition, and support of all Air Force weapon systems.

- The United States Air Force Museum (AFM) located at WPAFB is the world's largest and oldest military aviation museum, and is host to nearly one million visitors from the world on an annual basis. The AFM operates with the primary mission and goal of preserving the history of military aviation, and has been in operation since 1923.

- HQ National Air Intelligence Center (NAIC) constitutes the primary DOD agency for production of foreign aerospace intelligence. The center is responsible for assessing current and projected foreign aerospace capabilities, developing mission-planning intelligence materials, and evaluating technologies of potential adversaries. The NAIC mission involves utilizing these responsibilities to provide national decision makers accurate and timely technical information on the capabilities and potential threats of foreign powers to ensure U.S. air superiority.

- The Air Force Research Laboratory (AFRL) is responsible for leading the discovery, development, and transition of aeronautical technologies. The AFRL is comprised of seven major Directorates with functional responsibilities in advanced technology development. Five of the seven research directorates are located at Wright Field.

- The Air Force Institute of Technology (AFIT) offers accredited graduate and professional continuing education programs to AF personnel. The AFIT operates under the mission of keeping the Air Force on the leading edge of aerospace technology and management, through specialized education, basic research, and consultation.
- The 445th Airlift Wing of the USAF Reserve Command are stationed at WPAFB and fly C-141B Starlifter aircraft. The 445th has the mission of attaining and maintaining operational readiness; providing strategic transport of personnel and equipment; providing aeromedical evacuation; and recruiting and training towards these goals. The wing is comprised of four attached groups, and if ever required to mobilize, is part of the Air Mobility Command from Scott Air Force Base, Illinois. This group has resided at WPAFB since October 1994.
- DISAM is the DOD Defense Institute of Security Assistance Management. They are responsible for education and training for personnel involved in security assistance management.
- AFSAC is the Air Force Security Assistance Center. This center is responsible for the management of foreign military sales cases and contracts.
- The 55th Wing is a component of Air Combat Command and supports the National Airborne Operations Center. This involves providing modern, highly survivable, command, control, and communications capabilities for directing U.S. Forces.
- The Defense Information Systems Agency (DISA) missions at WPAFB are to provide the Air Force new business proposals, marketing requirements for their agency, and standard executive software for large computer mainframe requirements. The Defense Enterprise Computing Center Detachment Dayton provides computer operations.
- The Materiel Systems Group's (MSG) mission is to provide combat support information to the warfighter. MSG focuses on providing value to the customer and supports the Air Force implementation of the Aerospace Expeditionary Forces. MSG is headquartered at WPAFB with operating locations at Tinker AFB, Oklahoma and Hill AFB, Utah.

J3.1.4 Population

WPAFB employs over 20,000 persons and is considered the largest single-location employer in the State of Ohio and one of the largest employers among AF Bases worldwide. The following table breaks down the WPAFB population:

Category	Population
Active Duty U.S. Military	5,531
Appropriated Fund Civilians	11,705
Non-Appropriated Fund Civilians	1,003
Non-extended Active Duty ANG/Reserve	2,060
Total – Base Employees	**20,299**
Active Duty Dependents	11,856

Contract Employees (estimated)	12,000
Total	**44,155**

J3.1.5 Housing

There are 2,249 permanent housing units totaling 3,839,212 square feet of living space, located in distinct housing developments around the Base. These units can be divided into the following categories:

- **Brick Quarters –** These were the first housing units constructed at WPAFB and are part of a Historic District. They consist of 91 military family housing units built between 1933 – 1935 and an additional 10 units constructed in 1970. The Foulois house (88 Wright Avenue) lies with this area. Utility mains excluded from the housing privatization (HP) initiative will be included in the utilities privatization (UP) package.
- **Prairies Family Housing –** Consists of 1,382 Wherry housing units constructed in the 1950s. This area is being renovated and expanded as a housing privatization initiative. The HP package includes service laterals, while the Government has retained the utility mains and will include those mains in the UP package.
- **Woods Housing –** Constructed in the 1970s, there are 350 units located in Woodland Hills. This housing complex has been privatized except for the utility mains that will be included in this UP package.
- **Green Acres/Pine Estates –** Consist of 416 units built in 1973. A HP initiative is underway. As with the other housing areas, utility mains will be excluded from HP and included in the UP package.

J3.1.6 Geographically Separated Units

Geographically separated units (GSUs) are summarized below:

- **Huffman Radar Site:** located approximately ¼ mile off the south side of Area C on Huffman Road.
- **Kauffman Avenue 69KV Switching Station:** situated sort of between Areas A and B located just across Highway 444/Kauffman Avenue from Area A and approximately ¼ mile from the southeast end of Area A.

J3.2 Water Distribution System Description

J3.2.1 Water Distribution System Fixed Equipment Inventory

The Wright-Patterson AFB water distribution system consists of all appurtenances physically connected to on-base wells, pumping stations, water treatment components and (for off-base sources) the distribution system from the point in which the distribution system enters the Installation and Government ownership currently starts to the point of demarcation, defined by the Right of Way. The system may include, but is not limited to wells, pumps, water treatment components, pipelines, valves, fire hydrants, storage facilities, exterior backflow devices, pumps, and meters. The actual inventory of items sold

will be in the Bill of Sale at the time the system is transferred. The following description and inventory is included to provide the Contractor with a general understanding of the size and configuration of the distribution system. The Government makes no representation that the inventory is accurate. The Contractor's proposal shall be based on site inspections, information in the technical library, other pertinent information, and to a lesser degree the following description and inventory. Under no circumstances shall the Contractor be entitled to any service charge adjustments based on the accuracy of the following description and inventory.

All water rights (pumping or purchased) will remain with the Government.

Specifically excluded from the water distribution system privatization package:

- Non-potable water fire protection system, including deluge tanks, pipe, pumps, etc. with the exception of the 14" fire main that extends from Building 30172 to serve the flight line buildings and the fire pumps located in Building 30172.
- Irrigation systems.
- Military Family Housing water distribution system service laterals (included in the separate ongoing Housing Privatization initiatives).
- Backflow prevention devices used exclusively for internal isolation and not directly connected to the distribution system.

J3.2.1.1 Description

Water Sources

Wright-Paterson AFB receives water from two primary sources: on-Base wells and off-Base supply from Montgomery County Water District. An emergency supply is also available from the City of Fairborn.

The Mad River Aquifer is the primary source of water for the on-Base wells at Wright-Paterson AFB. Water quality from all the wells requires on-site treatment and is classified as very hard with a median hardness concentration of 378 milligrams per liter (mg/l), as reported in the 1994 Long-Range Water Plan. High Total Dissolved Solids (TDS) levels are also present, with most wells exceeding the 500 mg/l TDS Secondary Maximum Contaminant Level (SMCL) set by the Ohio Environmental Protection Agency (OEPA). The wells currently used are generally below the 0.3 mg/l OEPA SMCL for iron and 0.05 mg/l OEPA SMCL for manganese. However, five inactive wells have iron and manganese concentrations above SMCL concentrations.

The 11 active wells with finished depth ranging from 50 to 90 feet provide the primary supply for potable water and fire protection. Originally constructed in the early 1940s, the wells have received periodic upgrades with the most recent major project occurring in 1994/1995. This project replaced motors and pumps in each of the wells with submersible pumps ranging from 40 to 125 horsepower (HP). All wells are metered at the wellhead and nine wells are located inside dedicated structures primarily constructed of brick or cinder block. The wellheads for Nos. 8 and 9, in addition to the inactive wells, are located underground and do not have dedicated buildings.

It should be noted that while Installation area designations have specific boundaries, this system description divides areas into functional systems that roughly correspond to these area boundaries.

Wells in each area supply the individual water needs for their respective distribution systems. Areas A and C are adjacent to each other and their distribution systems can be interconnected through post indicating valves near Building 10855, however, they are normally operated independently. Area B is separated from Areas A and C by a major state highway (SR 444) and its system is completely independent of the others. The Woods at Wright Field housing area is supplied from Area B and The Prairies at Wright Field housing area is served by water purchased from Montgomery County.

Secondary water sourcing for Areas A and C is provided by the City of Fairborn through two six-inched metered lines connecting to the east side of Area C near Gate 35c.

Area A is serviced by two wells, Wells 8 and 9, which have a maximum combined production capacity of 1,900 gallons per minute (gpm) or 2.74 million gallons per day (mgd). These wells are located in underground vaults and share an emergency back-up generator. Area B is serviced by five wells, Wells 1, 2, 2b, 4 and 5, which have a maximum combined production capacity of 6,000 gpm or 8.6 mgd. Area B wells each have dedicated well house structures. Area C is serviced by four wells, Wells 1, 2, 3 and 7, which have a maximum combined capacity of 3,400 gpm or 4.90 mgd. Area C wells also have dedicated well house structures.

The East Wellfield is located in Area C but serves Area B and contains Wells A, B, C, E and F, which are currently not in operation due to high levels of iron, manganese, total dissolved solids and relative hardness. The East Wellfield has significant potential productivity with a rated combined pumping capacity of 7,330 gpm or 10.5 mgd; however, due to the water quality, a more extensive treatment process is required than is currently employed. Wells A, B, C, E and F are located in underground vaults. These wells are included as part of the UP package and could be incorporated into the active system at a future date, with appropriate treatment, to meet any increase in demand.

Wells yield 350—2000 gallons per minute. The table below summarizes the wells currently owned by WPAFB.

WATER WELLS

Well No.	Facility No.	Capacity (gpm)	Motor Size (hp)	Pump Depth (ft.)	Building Size (sf.)	Generator (kW)	Year	
							Original	Pumps
				Area A				
8	30851	950	50	58		100*	1943	1994
9	30852	950	50	61			1943	1994
				Area B				
A		1450	125	79			1946	1994
B		1550	125	85			1946	1994
C		1480	125	79			1946	1994

Well No.	Facility No.	Capacity (gpm)	Motor Size (hp)	Pump Depth (ft.)	Building Size (sf.)	Generator (kW)	Year	
							Original	Pumps
E		1500	125	81			1946	1994
F		1350	125	88			1946	1994
1	20086c	1200	125	52	500		1940	1994
2	20086g	1200	125	56	500		1944	1996
2b	20086g	1200	125	56	500		1944	1996
4	20086b	1200	125	71	500		1940	1994
5	20087	1200	125	57	499		1942	1994
				Area C				
1	30160	350	40	60	206		1942	1994
2	30171	750	40	60	205		1942	1994
3	30203	1100	50	64	624		1940	1994
7	30181	1200	50	57	265		1942	1994

Notes:
The generator is shared by Wells 8 and 9.

Water Treatment

Each of the three Areas of the Base (Areas A, B and C) has a separate water treatment facility. The Areas use the same treatment processes and are operated in the same manner. The treatment process performs the following functions:

- VOC removal
- Scaling control
- Disinfection
- Fluoridation
- Softening (for family housing areas)

Volatile organic chemical (VOC) contamination originating from various landfills, spill sites, underground storage tanks and other sources has been detected in the majority of the drinking water wells at Wright-Patterson AFB. The treatment processes allow each area's water treatment facility to produce finished water that meets the current OEPA and EPA primary standards set by the Safe Drinking Water Act (SDWA).

Due to the high concentration of dissolved solids in the well water, aeration can also result in the formation of calcium carbonate and metal deposits, or scale, on the treatment equipment. Scaling was a serious problem in all three of the areas water systems prior to incorporation of anti-scalant measures in the early 1990s. The anti-scalant process consists of feeding polyphosphate into the water prior to the air stripper to sequester calcium prior to aeration. This treatment causes the calcium to stay in solution and controls scale build-up in the air stripper media and in valves, pumps and piping downstream from the air strippers.

Carbon dioxide (CO_2) gas is added after the air strippers as part of the scale control process to inhibit precipitation of calcium carbonate. Fluoride is also applied prior to distribution.

The primary treatment for removal of VOC contaminants is packed tower air stripping. Each area of the Base contains a pair of packed tower air strippers. In each area, well pumps move groundwater through dual packed tower air strippers for VOC removal, primarily tetrachloroethylene (PCE) and trichloroethylene (TCE). In packed tower aeration, water flows down through a column of packing material, while air is concurrently blown upward through the packing causing volatilization of the contaminant compounds. Since raw water VOC content is relatively low and the volume of forced air through the air strippers dilutes the vapors being created, air emissions produced by this process do not require any treatment. Each stripper is registered with the Regional Air Pollution Control Agency to comply with Ohio regulations. The existing packed tower air strippers were put into service in approximately 1989.

After air stripping, disinfection of the drinking water supply is achieved by gas chlorination. A target chlorine residual of 1.5 mg/l is maintained to destroy any potential pathogenic microorganisms.

The Area A treatment system consists of two 950 gpm, 6 foot diameter air strippers with a maximum combined capacity of 2.8 mgd. Polyphospate is added to the water in a stand-alone building behind the water softener Building 10857 prior to the air strippers. Chlorine treatment equipment is located in a separate building near 10857 and CO_2 is added from equipment inside Building 10857. Fluoride is added from a separate building after air stripping.

The Area B system consists of two 2000 gpm, 9.5 foot diameter air strippers with a maximum combined capacity of 5.8 mgd. Polyphospate is added at the air strippers. CO_2 and chlorine equipment are located in a separate structures near the air strippers. Fluoride is added from a separate building after air stripping.

The Area C system consists of two 1750 gpm, 8.5 foot diameter air strippers with a maximum combined capacity of 5.0 mgd. Polyphosphate and chlorine treatment equipment is located in separate structures near the air strippers and CO_2 is added from equipment inside Building 30172. Fluoride is added from a separate building after air stripping.

Ion exchange units are used to soften the water for the Kittyhawk Area served by on-Base wells. Salt regenerated water softeners are operated for the housing areas to reduce the hardness to 80 mg/l. Located inside dedicated structures, Softener 10857 serves the Bricks Quarters and other nearby housing while Softener 20453 in Area B serves The Woods housing area. The waste brine produced by regeneration of the ion exchange media is discharged to the sanitary sewer and conveyed to the City of Dayton Wastewater Treatment Plant. Corrosion protection for the softener tanks is provided by impressed current cathodic protection systems.

The table below summarizes water treatment components currently owned by WPAFB.

TREATMENT

Components	Facility No.	Capacity (gpm)	Diameter (ft.)	Age		Notes
				Original	Upgrade	
			Area A			
Air Stripper 1		950	6	1992	2002	Inside Res 855 fenced enclosure w/ separate concrete pads
Air Stripper 2		950	6	1992	2002	
Chlorine				1992		Semi-permanent bldg. located near strippers
Polyphosphate				1992		Inside softener bldg.
Fluoride				1992		Semi-permanent bldg. located near strippers
CO_2				1992		Inside softener bldg.
Softener	10857			1972	1994	Cinder block building – 2,202 square feet
			Area B			
Air Stripper 1		2000	9.5	1989	2002	Inside Res 85A fenced enclosure w/ separate concrete pads
Air Stripper 2		2000	9.5	1989	2002	
Chlorine				1998		Semi-permanent bldg. located near softener
Polyphosphate				1989		Inside pumping station
Fluoride				1989		Semi-permanent bldg. located near strippers
CO_2				1992		Inside pumping station
Softener	20453			1971	1994	Cinder block building – 2,202 square feet
			Area C			
Air Stripper 1		1750	8.5	1989	2002	Fenced enclosure w/ concrete pad
Air Stripper 2		1750	8.5	1989	2002	
Chlorine				1989		Semi-permanent bldg. located near strippers
Polyphosphate				1989		Inside Well #2
Fluoride				1989		Semi-permanent bldg. located near strippers
CO_2				1992		Inside pumping station

Water Storage

Wright-Patterson AFB has a mixture of ground level and elevated water storage facilities in each area of the installation. As with other elements of the distribution systems, each area independently operates its own pumps, ground level storage and elevated storage. All of the pump houses have electrically powered pumps for normal daily usage. Each elevated storage tank contains impressed current type cathodic protection to enhance corrosion

resistance. While the sacrificial components of the cathodic protection system have largely been ignored, the impressed current type cathodic protection system associated with the water storage tanks is regularly maintained.

Area A storage is provided by two ground storage reservoirs and the elevated Tower 6. The ground storage reservoirs consist of two rectangular, sloped wall, concrete 375,000 gallon facilities originally constructed in 1944. Roofs were added at a later date. These reservoirs are co-located with the Area A air strippers and share a fenced enclosure. Tower 6 is a 250,000 gallon elevated steel tank constructed in 1984 and last painted in 1997.

Area B storage is provided by three ground storage reservoirs and three elevated steel tanks. Installation of backflow preventers in the last several years on the service line, and fire protection line, to each facility on WPAFB has resulted in decreased pressure in the facility. The ground storage reservoirs consist of three circular, concrete facilities of 250,000, 300,000 and 370,000-gallon capacity. Originally constructed in 1943, roofs were added in 1997. These reservoirs are located near the Area B pumping station. "High Service" Tower 8 serves the high pressure zone and has a 200,000 gallon capacity. "Fire Towers" 2 and 9 serve the domestic water system and have a 500,000 and 200,000 gallon capacity, respectively.

Area C storage is provided by one ground storage reservoir, No. 6, the elevated Tower 7 and "SAC" Tower 10. Consisting of a circular, concrete 300,000-gallon ground storage tank, Reservoir 6 was originally constructed in 1949 and a new roof was added in 1997. Tower 7 is a 200,000-gallon elevated steel tank constructed in 1996. Tower 10 is a 150,000-gallon elevated steel tank constructed in 1960 and last painted in 1997.

Net storage capacity includes 1.0 million gallons (MG) in Area A, 1.82 MG in Area B, and 0.65 MG in Area C for a total Base-wide storage capacity of 3.47 MG. The details of the storage in each Area are shown in the following table:

WATER STORAGE FACILITIES

Storage Facility	Facility No.	Gallons	Type	Year Original	Year Roof	Year Painted
			Area A			
Reservoir 1	10855a	375,000	Rectangular concrete sloped wall	1944		
Reservoir 2	10855b	375,000	Rectangular concrete sloped wall	1944		
Tower 6	10291	250,000	Elevated steel	1984		1997
			Area B			
Reservoir 1	20085a	370,000	Circular concrete w/ geodesic roof	1943	1997	
Reservoir 2	20085a	250,000	Circular concrete w/ geodesic roof	1943	1997	
Reservoir 3	20085a	300,000	Circular concrete w/ geodesic roof	1943	1997	
High Srvc. Tower 8	20348	200,000	Elevated steel			1997

Storage Facility	Facility No.	Gallons	Type	Year Original	Year Roof	Year Painted
"Fire" Tower 2	20222	500,000	Elevated steel			1997
"Fire" Tower 9	20460	200,000	Elevated steel	1957		1997
			Area C			
Reservoir 6	30172	300,000	Circular concrete w/ geodesic roof	1949	1997	
Tower 7	30177	200,000	Elevated steel	1996		1997
"SAC" Tower 10	34045	150,000	Elevated steel	1960		1997

Water Distribution

The original distribution system was constructed in the 1940s (with some pipe installed prior to the 1940s) using cast iron as the dominant pipe material. Newer lines are ductile iron or PVC pipe. Small amounts of other pipe materials are present in smaller diameters. Depth of burial of distribution lines ranges from four to eight feet. Generally, tracer wire or marker tape has not been effectively installed with non-metallic pipe during initial installation or replacement projects.

Backflow prevention devices and check valves used for containment purposes are included in the privatization package. Most of these devices are located inside buildings. Backflow devices used exclusively for internal isolation are excluded.

The water system for Areas A and C are usually operated independently. A small four-inch main connecting the two areas is normally open; however, this provides minimal hydraulic interconnection. Other larger interconnecting water mains are normally kept closed but could be opened should the need arise.

The Area A distribution system was originally constructed in the 1940s, is primarily cast iron pipe, and is considered to be in average condition. It is estimated that in the past five years there have been 10 pipe failures in this area of the distribution system. A small percentage of the pipe and valves have been replaced in the last 10 years. The system is generally looped with a few dead-end lines.

Area A Pumping Station 10855 consists of three 150 hp pumps capable of pumping 6,900 gpm. One pump is a variable frequency drive (VFD) pump able to pump directly into the distribution system. The pumps were last replaced in 2001. This building also contains the water lab for sample testing. The facility has an on-site, 450 kW back-up generator installed in 2001.

The Area C distribution system was originally constructed in the 1940s and originally consisted of cast iron pipe. Base maintenance personnel rate the distribution system to be in average condition with approximately 10 pipe failures in the last five years. A small percentage of the pipe has been replaced over the past 10 years.

Area C Pumping Station 30172 consists of three 100 hp pumps, one of which is a back-up, capable of pumping 3,000 gpm. Three 225 hp dedicated fire pumps are also located in this building and are included in the utility privatization package. The domestic pumps were installed in 1989; the fire pumps were installed in the 1940s. The facility has a back-up generator installed in 2004.

The Area B distribution system was originally constructed in the 1940s. The distribution piping consists of a mixture of cast iron and PVC. Base maintenance personnel rate the distribution system in Area B as being in good condition. There have not been any significant pipe failures in the past five years. A small percentage of pipe and valves have been replaced over the past 10 years. The system is looped with a few dead-end lines, which are flushed semi-annually. Approximately two-thirds of the fire hydrants have been replaced in the last 25 years.

Area B Pumping Station 20085a consists of two 150 hp pumps (with a third back up pump) capable of pumping 2,000 gpm feeding the High Zone and two 50 hp pumps capable of pumping 3,500 gpm feeding the Low Zone. One pump in the High Zone is a VFD pump able to pump directly into the distribution system. The pumps were last replaced in 1996. The facility has a 500 kW back-up generator installed in 1996.

The table below summarizes the water pump station components currently owned by WPAFB.

PUMP STATIONS

Pumping Station	Facility No.	No. of Pumps	Motor Size (hp)	Capacity (gpm)	Pump Age	Bldg. Size (sf.)	Bldg. Age	Generator Size (kW)	Generator Age
				Area A					
Area A Station	10855	3	3 x 150	3 x 2300	2001	2,454	1944	450	2000
				Area B					
Area B Station									
High Zone	20085a	3	150	3 x 2000	1996	1,500	1943	500	1996
Low Zone	20085a	2	50	2 x 1750					
				Area C					
Area C Station	30172	3 3 fire	2 x 100 3 x 225	3 x 1500	1989	1,709	1949	400	2004

The East Wellfield, currently inactive, is connected to the Area B reservoirs via a 24-inch pipe which crosses SR 444. While the East Wellfield is located in Area C, there is no existing connection between these wells and either Area A or Area C.

The Kittyhawk and West Ramp distribution systems were originally installed around 1955 using cast iron pipe. Both sub-areas are considered to be part of Area C. Base maintenance

personnel rate the systems to be in average condition with approximately three pipe failures in the last five years on each system. The fire pressure at the West Ramp is less than the pressure in the other areas of the Base due to its distance from the Main Base. In the Kittyhawk area, approximately 25 percent of the fire hydrants were replaced in 1997.

Two housing areas on the perimeter of the Main Base are The Prairies and The Woods. While Wright-Patterson AFB owns and maintains the water distribution systems serving these areas, The Prairies receive their water from the Montgomery County Water District. The Woods receives its water from the Area B water system. Numerous projects have been completed in The Prairies over recent years through housing privatization projects causing the replacement and relocation of parts of the distribution system. The service laterals in these two housing areas are no longer owned by the Air Force and are excluded from the utility privatization package.

The original Prairies system was built around 1960 using cast iron pipe. Maintenance personnel rate the distribution system as average and estimate that they have had 20 pipe failures in the past five years. It is felt that the problems they are experiencing are the result of poor installation and not necessarily due to deteriorated pipe. All of the fire hydrants were replaced in 1980 and in 2003.

The Woods family housing distribution system was originally installed around 1972 using cast iron pipe. Maintenance personnel rate the distribution system as good with no significant pipe failures in the past five years.

Wright-Patterson AFB has no Supervisory Control and Data Acquisition (SCADA) system or Energy Monitoring Control System (EMCS) to be included in the water distribution system privatization package.

GSUs

Huffman Radar Site has a domestic-sized water well, pump, pressure tank, and connective piping that provide the site's minimal water requirements.

Kauffman Avenue 69kV Switching Station has no water components.

J3.2.1.2 Inventory

Table 1 lists major components of the Wright-Patterson AFB water distribution system included in the sale.

TABLE 1
Fixed Inventory
Water Distribution System – Wright-Patterson AFB

Component	Size	Unit	Quantity	Approximate Year of Construction
MAIN BASE				
Pipe				
Cast Iron	<2″	LF	880	1945
Cast Iron	<2″	LF	1,140	1950
Cast Iron	<2″	LF	2,760	1955
Cast Iron	2″	LF	3,160	1945

Component	Size	Unit	Quantity	Approximate Year of Construction
Cast Iron	2″	LF	2,700	1950
Cast Iron	2″	LF	2,070	1955
Cast Iron	3″	LF	6,640	1945
Cast Iron	3″	LF	220	1950
Cast Iron	3″	LF	940	1955
Cast Iron	4″	LF	5,960	1945
Cast Iron	4″	LF	550	1950
Cast Iron	4″	LF	5,130	1955
Cast Iron	4″	LF	3,958	1960
Cast Iron	4″	LF	1,048	1979
Cast Iron	6″	LF	1,730	1945
Cast Iron	6″	LF	44,600	1950
Cast Iron	6″	LF	15,860	1955
Cast Iron	6″	LF	15,548	1960
Cast Iron	6″	LF	8,707	1979
Cast Iron	8″	LF	73,285	1945
Cast Iron	8″	LF	15,765	1955
Cast Iron	8″	LF	5,343	1960
Cast Iron	8″	LF	14,248	1979
Cast Iron	8″	LF	7,124	1990
Cast Iron	8″	LF	6,600	1995
Cast Iron	10″	LF	10,670	1945
Cast Iron	10″	LF	76,210	1950
Cast Iron	12″	LF	9,640	1945
Cast Iron	14″	LF	7,640	1945
Cast Iron	14″	LF	5,180	1955
Cast Iron (Fire Main)	14″	LF	5,600	1955
Cast Iron	16″	LF	2,490	1945
Cast Iron	20″	LF	24,410	1950
Cast Iron	24″	LF	9,080	1950
Asbestos Cement	12″	LF	70	1950
PVC	6″	LF	53,100	1994
PVC	8″	LF	27,540	1994
Service Connections and Valves				
Service Connections		EA	77	1945
Service Connections		EA	60	1955
Service Connections		EA	168	1995
Gate Valves (Mains)	<2″	EA	70	1945
Gate Valves (Mains)	<2″	EA	23	1950
Gate Valves (Mains)	2″	EA	48	1945
Gate Valves (Mains)	2″	EA	27	1950
Gate Valves (Mains)	2″	EA	14	1955
Gate Valves (Mains)	3″	EA	25	1945

Component	Size	Unit	Quantity	Approximate Year of Construction
Gate Valves (Mains)	3″	EA	2	1950
Gate Valves (Mains)	3″	EA	7	1955
Gate Valves (Mains)	4″	EA	24	1945
Gate Valves (Mains)	4″	EA	2	1950
Gate Valves (Mains)	4″	EA	21	1955
Gate Valves (Mains)	4″	EA	16	1960
Gate Valves (Mains)	4″	EA	4	1979
Gate Valves (Mains)	6″	EA	3	1945
Gate Valves (Mains)	6″	EA	89	1950
Gate Valves (Mains)	6″	EA	32	1955
Gate Valves (Mains)	6″	EA	31	1960
Gate Valves (Mains)	6″	EA	17	1979
Gate Valves (Mains)	6″	EA	106	1994
Gate Valves (Mains)	8″	EA	147	1945
Gate Valves (Mains)	8″	EA	32	1955
Gate Valves (Mains)	8″	EA	11	1960
Gate Valves (Mains)	8″	EA	28	1979
Gate Valves (Mains)	8″	EA	14	1990
Gate Valves (Mains)	8″	EA	55	1994
Gate Valves (Mains)	8″	EA	13	1995
Gate Valves (Mains)	10″	EA	21	1945
Gate Valves (Mains)	10″	EA	152	1950
Gate Valves (Mains)	12″	EA	19	1945
Gate Valves (Mains)	12″	EA	3	1950
Gate Valves (Mains)	14″	EA	15	1955
Gate Valves (Mains)	14″	EA	10	1994
Gate Valves (Mains)	16″	EA	5	1955
Gate Valves (Mains)	20″	EA	49	1950
Gate Valves (Mains)	24″	EA	18	1950
Post Indicator Valves		EA	11	1954
Post Indicator Valves		EA	55	1995
Backflow Preventers				
Backflow Preventers (Exterior)	8″	EA	12	2001
Backflow Preventers (Containment)	.75″	EA	4	2000
Backflow Preventers (Containment)	.75″	EA	8	2001
Backflow Preventers (Containment)	1″	EA	1	1998
Backflow Preventers (Containment)	1″	EA	3	1999
Backflow Preventers (Containment)	1″	EA	13	2000
Backflow Preventers (Containment)	1″	EA	8	2001
Backflow Preventers (Containment)	1″	EA	1	2003
Backflow Preventers (Containment)	1¼″	EA	2	1999
Backflow Preventers (Containment)	1¼″	EA	5	2000
Backflow Preventers (Containment)	1¼″	EA	1	2001

Component	Size	Unit	Quantity	Approximate Year of Construction
Backflow Preventers (Containment)	1½″	EA	6	1999
Backflow Preventers (Containment)	1½″	EA	20	2000
Backflow Preventers (Containment)	1½″	EA	6	2001
Backflow Preventers (Containment)	1½″	EA	2	2002
Backflow Preventers (Containment)	2″	EA	1	1992
Backflow Preventers (Containment)	2″	EA	2	1997
Backflow Preventers (Containment)	2″	EA	3	1998
Backflow Preventers (Containment)	2″	EA	22	1999
Backflow Preventers (Containment)	2″	EA	57	2000
Backflow Preventers (Containment)	2″	EA	62	2001
Backflow Preventers (Containment)	2″	EA	1	2002
Backflow Preventers (Containment)	2″	EA	1	2003
Backflow Preventers (Containment)	2″	EA	1	2004
Backflow Preventers (Containment)	2½″	EA	2	1999
Backflow Preventers (Containment)	2½″	EA	5	2000
Backflow Preventers (Containment)	2½″	EA	7	2001
Backflow Preventers (Containment)	3″	EA	4	1999
Backflow Preventers (Containment)	3″	EA	27	2000
Backflow Preventers (Containment)	3″	EA	38	2001
Backflow Preventers (Containment)	4″	EA	3	1992
Backflow Preventers (Containment)	4″	EA	14	1999
Backflow Preventers (Containment)	4″	EA	24	2000
Backflow Preventers (Containment)	4″	EA	41	2001
Backflow Preventers (Containment)	4″	EA	2	2002
Backflow Preventers (Containment)	6″	EA	1	1982
Backflow Preventers (Containment)	6″	EA	2	1999
Backflow Preventers (Containment)	6″	EA	11	2000
Backflow Preventers (Containment)	6″	EA	15	2001
Backflow Preventers (Containment)	8″	EA	2	2000
Backflow Preventers (Containment)	8″	EA	2	2001
Backflow Preventers (Containment)	10″	EA	2	1999
Backflow Preventers (Containment)	10″	EA	1	2000
Backflow Preventers (Containment)	10″	EA	1	2001
Check Valves	2½″	EA	2	2000
Check Valves	3″	EA	1	2000
Check Valves	3″	EA	1	2001
Check Valves	4″	EA	2	1998
Check Valves	4″	EA	4	1999
Check Valves	4″	EA	4	2000
Check Valves	4″	EA	9	2001
Check Valves	4″	EA	1	2002
Check Valves	4″	EA	1	2003
Check Valves	6″	EA	1	1990

Component	Size	Unit	Quantity	Approximate Year of Construction
Check Valves	6″	EA	2	1997
Check Valves	6″	EA	2	1998
Check Valves	6″	EA	21	1999
Check Valves	6″	EA	7	2000
Check Valves	6″	EA	34	2001
Check Valves	8″	EA	13	1999
Check Valves	8″	EA	9	2000
Check Valves	8″	EA	39	2001
Check Valves	10″	EA	3	2000
Check Valves	10″	EA	2	2001
Check Valves	12″	EA	4	2000
Fire Hydrants				
Fire Hydrants		EA	138	1945
Fire Hydrants		EA	33	1955
Fire Hydrants		EA	64	1970
Fire Hydrants		EA	129	1990
Fire Hydrants		EA	23	1995
Fire Hydrants		EA	20	1997
Water Storage Tanks				
Elevated - #6	250,000 gal	EA	1	1984/1997*
Elevated - #7	200,000 gal	EA	1	1996
Elevated - #8	200,000 gal	EA	1	Unk/1997*
Elevated - #10	150,000 gal	EA	1	1960/1997*
Elevated (Fire)- #2	500,000 gal	EA	1	Unk/1997*
Elevated (Fire) - #9	200,000 gal	EA	1	Unk/1997*
Ground - #10855a	375,000 gal	EA	1	1944/Unk*
Ground - #10855b	375,000 gal	EA	1	1944/Unk*
Ground - #20085a	375,000 gal	EA	1	1943/1997*
Ground - #20085b	250,000 gal	EA	1	1943/1997*
Ground - #20085c	300,000 gal	EA	1	1943/1997*
Ground - #30172	300,000 gal	EA	1	1949/1997*
Cathodic Protection Components				
Tank #6				
Cast Iron FW-type Anodes		EA	87	1996
Copper Cable	#10 AWG	LF	500	1996
Rectifier	28V/10A	EA	1	1996
Reference Cell		EA	2	1996
Tank #7				
MMO Wire Anode in Bowl and Riser	0.060″	EA	1	1997
Copper Cable	#12 AWG	LF	500	1997
Rectifier	28V/10A	EA	1	1997
Reference Cell		EA	2	1997

Component	Size	Unit	Quantity	Approximate Year of Construction
Tank #8				
MMO Wire Anode in Bowl and Riser	0.060″	EA	1	1985
Copper Cable	#12 AWG	LF	500	1985
Rectifier	28V/10A	EA	1	1985
Reference Cell		EA	2	1985
Tank #10				
Platinized Niobium Wire Anode in Bowl and Riser		EA	1	1997
Copper Cable	#12 AWG	LF	500	1997
Rectifier	28V/10A	EA	1	1997
Reference Cell		EA	2	1997
Tank #2				
MMO Wire Anode in Bowl and Riser	0.060″	EA	1	1968
Copper Cable	#12 AWG	LF	500	1968
Rectifier	28V/10A	EA	1	1968
Reference Cell		EA	1	1968
Tank #9				
MMO Wire Anode in Bowl and Riser	0.060″	EA	1	1985
Copper Cable	#12 AWG	LF	500	1985
Rectifier	28V/10A	EA	1	1985
Reference Cell		EA	1	1985
Wells and Components				
Well #8 – Area A				
Pump and Column	50 HP	EA	1	1994
Drilling, Screening, and Casing		LF	58	1943
Surface Seal Well #8 Conc. Filled		LS	1	1943
Develop Well #8		LS	1	1943
Pump Test		LS	1	1943
Sterilization		LS	1	1943
Pump Controls		EA	1	1994
Electric Connections		EA	1	1943
Motor Starter and Controls		EA	1	1994
Interior Step-down Transformer Dry Type	5 kVA	EA	1	1943
Meter		EA	1	1943
Generator**	100 kW	EA	1	1984
Well #9 – Area A				
Pump and Column	50 HP	EA		1994
Drilling, Screening, and Casing		LF	61	1943
Surface Seal Well #9 Conc. Filled		LS	1	1943
Develop Well #9		LS	1	1943
Pump Test		LS	1	1943
Sterilization		LS	1	1943

Component	Size	Unit	Quantity	Approximate Year of Construction
Pump Controls		EA	1	1994
Electric Connections		EA	1	1943
Motor Starter and Controls		EA	1	1994
Interior Step-down Transformer Dry Type	5 kVA	EA	1	1994
Meter		EA	1	1943
Well #A – Area B				
Pump and Column	125 HP	EA	1	1994
Drilling, Screening, and Casing		LF	79	1946
Surface Seal Well #A Conc. Filled		LS	1	1946
Develop Well #A		LS	1	1946
Pump Test		LS	1	1946
Sterilization		LS	1	1946
Pump Controls		EA	1	1994
Electric Connections		EA	1	1946
Motor Starter and Controls		EA	1	1994
Interior Step-down Transformer Dry Type	5 kVA	EA	1	1994
Meter		EA	1	1946
Well #B – Area B				
Pump and Column	125 HP	EA	1	1994
Drilling, Screening, and Casing		LF	85	1946
Surface Seal Well #B Conc. Filled		LS	1	1946
Develop Well #B		LS	1	1946
Pump Test		LS	1	1946
Sterilization		LS	1	1946
Pump Controls		EA	1	1994
Electric Connections		EA	1	1946
Motor Starter and Controls		EA	1	1994
Interior Step-down Transformer Dry Type	5 kVA	EA	1	1994
Meter		EA	1	1946
Well #C – Area B				
Pump and Column	125 HP	EA	1	1994
Drilling, Screening, and Casing		LF	79	1946
Surface Seal Well, #C Conc. Filled		LS	1	1946
Develop Well #C		LS	1	1946
Pump Test		LS	1	1946
Sterilization		LS	1	1946
Pump Controls		EA	1	1994
Electric Connections		EA	1	1946
Motor Starter and Controls		EA	1	1994
Interior Step-down Transformer	5 kVA	EA	1	1994

Component	Size	Unit	Quantity	Approximate Year of Construction
Dry Type				
Meter		EA	1	1946
Well #E – Area B				
Pump and Column	125 HP	EA	1	1994
Drilling, Screening, and Casing		LF	81	1946
Surface Seal Well, #E Conc. Filled		LS	1	1946
Develop Well #E		LS	1	1946
Pump Test		LS	1	1946
Sterilization		LS	1	1946
Pump Controls		EA	1	1994
Electric Connections		EA	1	1946
Motor Starter and Controls		EA	1	1994
Interior Step-down Transformer Dry Type	5 kVA	EA	1	1994
Meter		EA	1	1946
Well #F – Area B				
Pump and Column	125 HP	EA	1	1994
Drilling, Screening, and Casing		LF	88	1946
Surface Seal Well, #F Conc. Filled		LS	1	1946
Develop Well #F		LS	1	1946
Pump Test		LS	1	1946
Sterilization		LS	1	1946
Pump Controls		EA	1	1994
Electric Connections		EA	1	1946
Motor Starter and Controls		EA	1	1994
Interior Step-down Transformer Dry Type	5 kVA	EA	1	1994
Meter		EA	1	1946
Well #1 – Area B				
Pump and Column	125 HP	EA	1	1994
Drilling, Screening, and Casing		LF	52	1940
Surface Seal Well #1 Conc. Filled		LS	1	1940
Develop Well #1		LS	1	1940
Pump Test		LS	1	1940
Sterilization		LS	1	1940
Pump Controls		EA	1	1994
Building		SF	500	1940
Electric Connections		EA	1	1940
Motor Starter and Controls		EA	1	1994
Service Panel for Electrical Lights & Interior Heater		EA	1	1994
Interior Step-down Transformer Dry Type	5 kVA	EA	1	1994

Component	Size	Unit	Quantity	Approximate Year of Construction
Commercial Heater (Interior)	3000 W	EA	1	1994
Meter		EA	1	1994
Well #2 – Area B				
Pump and Column	125 HP	EA	1	1996
Drilling, Screening, and Casing		LF	56	1944
Surface Seal Well #2 Conc. Filled		LS	1	1944
Develop Well #2		LS	1	1944
Pump Test		LS	1	1944
Sterilization		LS	1	1944
Pump Controls		EA	1	1996
Building		SF	500	1944
Electric Connections		EA	1	1944
Motor Starter and Controls		EA	1	1996
Service Panel for Electrical Lights & Interior Heater		EA	1	1996
Interior Step-down Transformer Dry Type	5 kVA	EA	1	1996
Commercial Heater (Interior)	3000 W	EA	1	1996
Meter		EA	1	1996
Well #2b – Area B				
Pump and Column	125 HP	EA	1	1996
Drilling, Screening, and Casing		LF	56	1944
Surface Seal Well, #2b Conc. Filled		LS	1	1944
Develop Well #2b		LS	1	1944
Pump Test		LS	1	1944
Sterilization		LS	1	1944
Pump Controls		EA	1	1996
Building		SF	500	1944
Electric Connections		EA	1	1944
Motor Starter and Controls		EA	1	1996
Service Panel for Electrical Lights & Interior Heater		EA	1	1996
Interior Step-down Transformer Dry Type	5 kVA	EA	1	1996
Commercial Heater (Interior)	3000 W	EA	1	1996
Meter		EA	1	1996
Well #4 – Area B				
Pump and Column	125 HP	EA	1	1994
Drilling, Screening, and Casing		LF	71	1940
Surface Seal Well, #4 Conc. Filled		LS	1	1940
Develop Well #4		LS	1	1940
Pump Test		LS	1	1940
Sterilization		LS	1	1940

Component	Size	Unit	Quantity	Approximate Year of Construction
Pump Controls		EA	1	1994
Building		SF	500	1940
Electric Connections		EA	1	1940
Motor Starter and Controls		EA	1	1994
Service Panel for Electrical Lights & Interior Heater		EA	1	1994
Interior Step-down Transformer Dry Type	5 kVA	EA	1	1994
Commercial Heater (Interior)	3000 W	EA	1	1994
Meter		EA	1	1994
Well #5 – Area B				
Pump and Column	125 HP	EA	1	1994
Drilling, Screening, and Casing		LF	57	1942
Surface Seal Well, #5 Conc. Filled		LS	1	1942
Develop Well #5		LS	1	1942
Pump Test		LS	1	1942
Sterilization		LS	1	1942
Pump Controls		EA	1	1994
Building		SF	499	1942
Electric Connections		EA	1	1942
Motor Starter and Controls		EA	1	1994
Service Panel for Electrical Lights & Interior Heater		EA	1	1994
Interior Step-down Transformer Dry Type	5 kVA	EA	1	1994
Commercial Heater (Interior)	3000 W	EA	1	1994
Meter		EA	1	1994
Well #1 – Area C				
Pump and Column	40 HP	EA	1	1994
Drilling, Screening, and Casing		LF	60	1942
Surface Seal Well, #1 Conc. Filled		LS	1	1942
Develop Well #1		LS	1	1942
Pump Test		LS	1	1942
Sterilization		LS	1	1942
Pump Controls		EA	1	1994
Building		SF	206	1942
Electric Connections		EA	1	1942
Motor Starter and Controls		EA	1	1994
Service Panel for Electrical Lights & Interior Heater		EA	1	1994
Interior Step-down Transformer Dry Type	5 kVA	EA	1	1994
Commercial Heater (Interior)	3000 W	EA	1	1994

Component	Size	Unit	Quantity	Approximate Year of Construction
Meter		EA	1	1942
Well #2 – Area C				
Pump and Column	40 HP	EA	1	1994
Drilling, Screening, and Casing		LF	60	1942
Surface Seal Well, #2 Conc. Filled		LS	1	1942
Develop Well #2		LS	1	1942
Pump Test		LS	1	1942
Sterilization		LS	1	1942
Pump Controls		EA	1	1994
Building		SF	205	1942
Electric Connections		EA	1	1942
Motor Starter and Controls		EA	1	1994
Service Panel for Electrical Lights & Interior Heater		EA	1	1994
Interior Step-down Transformer Dry Type	5 kVA	EA	1	1994
Commercial Heater (Interior)	3000 W	EA	1	1994
Meter		EA	1	1942
Well #3 – Area C				
Pump and Column	50 HP	EA	1	1994
Drilling, Screening, and Casing		LF	64	1940
Surface Seal Well, #3 Conc. Filled		LS	1	1940
Develop Well #3		LS	1	1940
Pump Test		LS	1	1940
Sterilization		LS	1	1940
Pump Controls		EA	1	1994
Building		SF	624	1940
Electric Connections		EA	1	1940
Motor Starter and Controls		EA	1	1994
Service Panel for Electrical Lights & Interior Heater		EA	1	1994
Interior Step-down Transformer Dry Type	5 kVA	EA	1	1994
Commercial Heater (Interior)	3000 W	EA	1	1994
Meter		EA	1	1940
Well #7 – Area C				
Pump and Column	50 HP	EA	1	1994
Drilling, Screening, and Casing		LF	57	1942
Surface Seal Well, #7 Conc. Filled		LS	1	1942
Develop Well #7		LS	1	1942
Pump Test		LS	1	1942
Sterilization		LS	1	1942
Pump Controls		EA	1	1994

Component	Size	Unit	Quantity	Approximate Year of Construction
Building		SF	265	1942
Electric Connections		EA	1	1942
Motor Starter and Controls		EA	1	1994
Service Panel for Electrical Lights & Interior Heater		EA	1	1994
Interior Step-down Transformer Dry Type	5 kVA	EA	1	1994
Commercial Heater (Interior)	3000 W	EA	1	1994
Meter		EA	1	1942
Booster Pump Stations				
Station 10855				
Pump, Piping, & Controls	150 HP	EA	1	2001
Pump, Piping, & Controls	150 HP	EA	1	2001
Pump, Piping, & Controls	150 HP	EA	1	2001
Building		SF	2,454	1944
Emergency Generator	450 kW	EA	1	2001
Station 20085a				
Building		SF	1,748	1943
Emergency Generator	500 kW	EA	1	1996
High Zone				
Pump, Piping, & Controls	150 HP	EA	1	1996
Pump, Piping, & Controls	150 HP	EA	1	1996
Pump, Piping, & Controls	150 HP	EA	1	1996
Low Zone				
Pump, Piping, & Controls	50 HP	EA	1	1996
Pump, Piping, & Controls	50 HP	EA	1	1996
Station 30172				
Pump, Piping, & Controls	100 HP	EA	1	1989
Pump, Piping, & Controls	100 HP	EA	1	1989
Pump, Piping, & Controls	100 HP	EA	1	1989
Pump, Piping, & Controls (Fire)	225 HP	EA	1	1949
Pump, Piping, & Controls (Fire)	225 HP	EA	1	1949
Pump, Piping, & Controls (Fire)	225 HP	EA	1	1949
Building		SF	1,709	1949
Emergency Generator	400 kW	EA	1	2004
Additional Inventory				
Chlorination Station		EA	1	1989
Chlorination Station		EA	1	1992
Chlorination Station		EA	1	1998
Air Strippers	1,750 GPM	EA	2	1989/2002*
Air Strippers	2,000 GPM	EA	2	1989/2002*
Air Strippers	950 GPM	EA	2	1992/2002*
Polyphosphate Station		EA	2	1989

Component	Size	Unit	Quantity	Approximate Year of Construction
Polyphosphate Station		EA	1	1992
CO_2 Station		EA	3	1992
Water Softening Station		EA	1	1972/1994*
Water Softening Station		EA	1	1971/1994*
Fluoride Station		EA	3	2002
Meters		EA	9	1945
MILITARY FAMILY HOUSING				
THE WOODS				
Cast Iron Pipe	2″	LF	462	1972
Cast Iron Pipe	3″	LF	1,524	1972
Cast Iron Pipe	6″	LF	2,380	1972
Cast Iron Pipe	8″	LF	2,692	1972
Asbestos Cement	6″	LF	2,370	1972
Asbestos Cement	8″	LF	2,693	1972
Gate Valves (Mains)	2″	EA	7	1972
Gate Valves (Mains)	3″	EA	5	1972
Gate Valves (Mains)	6″	EA	5	1972
Gate Valves (Mains)	8″	EA	6	1972
Fire Hydrants		EA	20	1972
BRICK QUARTERS				
Cast Iron Pipe	6″	LF	8,727	1945
Gate Valves (Mains)	6″	EA	17	1945
Fire Hydrants			25	1945
PINE ESTATES & GREEN ACRES				
Cast Iron Pipe	6″	LF	27,763	1972
Gate Valves (Mains)	6″	EA	56	1972
Fire Hydrants			62	1972
THE PRAIRIES				
Cast Iron Pipe	2″	LF	6,073	1960
Cast Iron Pipe	3″	LF	8,264	1960
Cast Iron Pipe	6″	LF	26,258	1960
Cast Iron Pipe	8″	LF	5,013	1960
Cast Iron Pipe	10″	LF	1,457	1960
PVC Pipe	8″	LF	21,571	2003
Gate Valves (Mains)	2″	EA	66	1960
Gate Valves (Mains)	3″	EA	33	1960
Gate Valves (Mains)	8″	EA	38	1960
Gate Valves (Mains)	8″	EA	57	2003
Gate Valves (Mains)	10″	EA	13	1960
Gate Valves (Mains)	12″	EA	7	1960
Fire Hydrants		EA	47	1980
Fire Hydrants		EA	49	2003

Component	Size	Unit	Quantity	Approximate Year of Construction
HUFFMAN RADAR SITE				
Asbestos Cement Pipe	4″	LF	150	1955
Gate Valves	4″	EA	3	1955
Residential Well – Pump & Column	5 HP	EA	1	1955
Residential Well – Drilling, Screening, & Casing		LF	70	1955
Residential Well – Bladder Tank	40 gal	EA	1	1955

Notes:
*Year/Year = original construction/upgrade
**This generator is shared with Well #9.

EA = each	HP = horsepower	Conc. = concrete
LF = linear feet	gal = gallons	A = ampere
PVC = polyvinyl chloride	GPM = gallons per minute	V = volt
SF = square footage	W = watt	kW = kilowatt
kVA = kilovolt ampere	LS = lump sum	CO_2 = carbon dioxide
Unk = unknown	FW = fresh water	MMO = mixed metal oxide

J3.2.2 Water Distribution System Non-Fixed Equipment and Specialized Tools

Tables 2 and **3** list ancillary equipment (spare parts) and specialized vehicles and tools included in the purchase.

TABLE 2
Spare Parts
Water Distribution System – Wright-Patterson AFB

Item	Quantity	Location	Description
Valves, Flanges, Couplers & Fittings	Quantity Varies	Utility Shop	Varies sizes and types
Pipe	Quantity Varies	Utility Shop	Various sizes (1″ – 6″)

TABLE 3
Specialized Vehicles and Tools
Water Distribution System – Wright-Patterson AFB

Description	Size	Location	Description	Maker
None.				

J3.2.3 Water Distribution System Manuals, Drawings, and Records

Table 4 lists the manuals, drawings, and records that will be transferred with the system.

TABLE 4
Manuals, Drawings, and Records
Water Distribution System – Wright-Patterson AFB

Quantity	Item	Description	Remarks
1	Utility Maps	Base Water Lines, "Vision" Graphical Information System 2002	Electronic
1	Utility Maps	Base Water Lines, 1997, 1''-400'	Sheets 1-5
1	Utility Maps	The Prairies at Wright Field, Construction Drawings, 2002	Electronic
1	Report	Annual Cathodic Protection Report, 2003	One Volume
1	Report	Backflow Prevention Device Survey, 1997	One Volume
1	Manuals	Cathodic Protection	
1	Planning Document	General Plan	One Volume
1	Planning Document	Comprehensive Plan	Multiple Volumes
Various	Manuals	Well operations	
Various	Manuals	Treatment and pumping stations operations	

J3.3 Specific Service Requirements

The service requirements for the Wright-Patterson AFB water distribution system are as defined in the Section C, *Description/Specifications/Work Statement*. The following requirements are specific to the Wright-Patterson AFB water distribution system and are in addition to those found in Section C. If there is a conflict between requirements described below and Section C, the requirements listed below take precedence over those found in Section C.

- IAW Condition C of Attachment 1 to the ROW, the Contractor shall follow the Base digging permit process. The Contractor will be required to mark his own utilities and will be responsible for initiating, officiating, and tracking digging permits for his own utilities and shall obtain all necessary authorizations, permits and line locates prior to performing any excavations on Base. The Contractor will provide not less than 2 and not more than 5 working days notice (emergencies being excepted) of any needed excavations to the 88th ABW/CE and to said Utilities Privatization Administrative Contracting Officer so the location of underground utilities may be located and marked by the applicable utility owner. The applicable utility owner must mark their utilities as requested within 48 hours of receipt of request for non-emergency work.
- The Contractor shall support the Base digging permit process by routinely accepting and promptly processing digging permit requests which may impact on the integrity of the Contractor's utility system and/or the safety of the requestors. The Contractor shall be a participant of the Base digging permit process and shall attend any meetings called in

support of the process. Contractor shall be responsible to locate and mark their utilities in the affected areas. The digging permit process involves weekly attendance at the scheduled meeting and subsequent appointments for location and marking of utilities throughout the week.

- Because of the critical nature of many WPAFB mission requirements, response to water problems must be immediate. The Contractor will respond to emergency water problems within 10 minutes of notification during duty hours and within one hour during non-duty hours.
- The Contractor's representative that responds to emergency service requests shall be knowledgeable of the utility system and the Contractor's Service Interruption/Contingency Plan. The representative shall be able to assess damages and estimate the time it will take to make temporary or full-service repairs. In accordance with Paragraph H.6, Rights of the Government to Perform Function with Its Own Personnel, the Government reserves the right to substitute or supplement the Contractor's efforts during emergency situations where the Contractor's failure or inability to perform is beyond the Contractor's control and without the Contractor's fault or negligence. In this situation, the Contractor would not be held responsible for costs incurred by the Government. However, the Contractor could be held financially responsible if the Government substitutes or supplements the Contractor's efforts during emergency situations and the Contractor's failure or inability to perform was the result of the fault or negligence of the Contractor.
- The Contractor shall provide daily meter readings for all water wells. All other meter readings shall be provided monthly. Daily and monthly meter readings shall be included in the monthly Meter Reading Report (Paragraph J3.6).
- The Contractor shall keep meter books with monthly (or daily as applicable) consumption and demand (if applicable) for each meter reading. Meter books shall also include the building address or facility number, meter number, previous month (or day as applicable) readings, current month (or day as applicable) readings, multiplier for each meter, total monthly consumption by meter, points of contact for meter questions, and procedures for converting meter readings into consumption (including multipliers).
- Contractor shall be responsible for all maintenance, calibration and yearly testing of all water meters in accordance with AWWA standards.
- The Government shall retain ownership of airfield beacon lighting, antennas, sensors (SCADA), and other communications, navigational aid, radar, emergency warning, and associated ancillary equipment on water towers. The Government will maintain the beacon lighting, antennas, and other communications, navigational aid, obstruction lighting, radar, emergency warning, and associated ancillary equipment. IAW the Right of Way, the Contractor shall allow the continued fixture of these systems to the towers as well as unrestricted Government access to this equipment.
- The Government shall retain ownership of the sensors, communications, and other equipment associated with the SCADA system. The SCADA system may be used by the Government to monitor water facilities. The Government will maintain the sensors, antennas, and other communications, and associated ancillary equipment. Contractor may purchase, install, operate, and maintain a SCADA system.

- The Contractor shall operate and maintain the cathodic protection system for each water storage tank. Minimum testing and maintenance standards for cathodic protection shall be according to National Association of Corrosion Engineers (NACE) standards. The Contractor shall test each water storage tanks' cathodic protection system monthly. Contractor shall make any repairs or adjustments necessary to ensure readings within acceptable limits. This will be performed by a NACE certified technician.
- The Contractor shall prepare an annual report documenting the condition of the cathodic protection system in accordance with NACE standards for each water storage tank. A copy of the report shall be provided to the Contracting Officer, or other representative(s) as designated by the Contracting Officer. Annual reports shall be provided by the 30th day of each year for the previous year.
- The Contractor shall be responsible for all maintenance on water towers to include exterior and interior inspection and painting in accordance with AWWA standards. The Contractor shall coordinate with the Base Civil Engineer before painting any water storage tanks. Exterior paint shall be compatible with the Base color scheme.
- IAW Paragraph C.5.1.3, and in compliance with Base architectural standards, new and renewal distribution piping shall normally be installed using the most economical method unless otherwise prohibited by the Government. Excavation of paved surfaces is prohibited without consultation and approval from the Base Civil Engineer.
- Upon reasonable request and with reasonable notice from the Base Civil Engineer, the Contractor shall provide escorted tours to provide instruction and demonstration of the water distribution system operations, maintenance and construction. The water distribution system includes valves, gauges, pipes, wells, storage tanks, and other water distribution system devices, and the Contractor's shop(s) and storage areas.
- Base specific fire flow requirements will be provided in the technical library. Prior to beginning any work, the Contractor shall coordinate with the Civil Engineer Service Call Desk and the Fire Department for any change to the water distribution system that may affect fire protection.
- The Contractor shall coordinate replacement or changes to fire hydrants with the Base Fire Department. The Contractor shall use flush mount fire hydrants along runways, taxiways, ramps, aircraft parking aprons, and aircraft hangers, as specified in the Base design standards. Above ground fire hydrants shall be painted to match the Base color scheme. Isolation valves shall be installed with all new and replacement fire hydrants.
- The Contractor shall perform flow testing and maintenance of fire hydrants and water lines IAW National Fire Protection Association standards. Contractor shall also perform flow testing approximately 15 times per year for design purposes and approximately 15 times per year for construction purposes.
- The Contractor shall provide water treatment as a part of the distribution service. Current treatment includes chlorination, fluoridation, and CO_2 and phosphate addition. Treatment shall be IAW applicable federal, state, and local rules and regulations. The Contractor shall provide the Contracting Officer with a copy of any and all testing information and reports related to the water distribution system that are submitted to

any agency. The Contractor shall provide copies to the Government concurrently with submittal to any agency.

- The Contractor shall coordinate with WPAFB prior to making any changes to the water treatment process.
- IAW Paragraph C.9, Coordination of Work, the Contractor shall coordinate planned outages using the Civil Engineer Outage Form AF103.
- In addition to Section 8 of the ROW, the utility contractor (grantee) shall repair at no cost to the Government any utilities damaged by other contractors or Government organizations because Contractor utilities were improperly marked by the Contractor. Property damaged by the contractor in the conduct of his business shall be corrected in accordance with ROW Section 8.
- IAW Section 12 of the ROW, the Contractor is responsible for all supporting utilities that may be required to own, operate and maintain the utility system subject to privatization. For example, electricity is needed to power substation lighting. Supporting utilities are defined as the supply of electricity, natural gas, water, or wastewater collection, and any infrastructure or materials necessary to connect to the supply of electricity, natural gas, water, or wastewater collection. The Contractor shall coordinate with the WPAFB Civil Engineer and the Contracting Officer for any supporting utilities to be provided by the Government.
- The Contractor shall enter into a Memorandum of Understanding (MOU) with the Base Fire Department for fire protection of all facilities included in the purchase of the utility. The MOU shall be completed during the transition period and a copy provided to the Contracting Officer.
- The Contractor shall abide by Base fire protection requirements. The utility system purchased by the Contractor includes facilities. These facilities may or may not include fire alarm systems. Where required by federal, state or local regulation, the Contractor shall maintain the fire alarm system for all facilities owned and operated by the Contractor. The Contractor shall permit Fire Department personnel access to their facilities to perform fire inspections and emergency response.
- IAW Paragraph C.9.8, Exercises and Crisis Situations Requiring Utility Support, the Contractor shall provide support as directed by Base Civil Engineer for exercises and crisis situations.
- The Contractor shall ensure that employees understand, implement and enforce Force Protection Condition (FPCON) requirements specified in AFI 10-245. The Contractor is advised that FORCE PROTECTION conditions vary and that these changes may cause delays in access to Wright-Patterson AFB. These conditions are outlined in the Wright-Patterson AFB FPCON Checklist. This checklist will be available in the technical library. The Contractor will plan accordingly to provide uninterrupted support. Compliance with and staffing in support of FORCE PROTECTION condition changes shall not result in service charge adjustments to the contract.
- IAW Section 8 of the ROW, the Contractor shall maintain existing security mechanisms (i.e., locks, fences) to protect the utility systems. The security mechanisms should prevent tampering and sabotage. Should the Contractor become aware of any suspicious

incident, security breach or act of sabotage at or against the utility system, or any of its associated facilities, they will immediately contact the Security Police Squadron and the Civil Engineers.

- Due to heightened security concerns on military installations, all Contractor and subcontractor personnel who must enter WPAFB to perform this contract must undergo a background check. Background checks will be conducted using the following information: name, drivers license number, social security number, and date of birth. These procedures are considered permanent. Any Contractor or subcontractor employee that does not consent to this background investigation will not be allowed access to WPAFB. Any derogatory information resulting from the investigation, or which otherwise becomes known to the contracting officer, may also result in such individuals being prevented from entering the installation. However, nothing in this requirement shall excuse the Contractor from proceeding with any resulting contract as required.
- The Contractor shall ensure their employees, and those of their subcontractors, have the proper credentials allowing them to work in the United States. Employees must have valid Social Security Cards. Non-US Citizens must have current and valid permission from the Bureau of Immigration and Naturalization. Persons found to be undocumented or illegal aliens will be remanded to the proper authorities. The Contractor shall not be entitled to any compensation for delays or expenses associated with complying with the provisions of this requirement. Contractor personnel and their subcontractors must identify themselves as Contractors or subcontractors during meetings, telephone conversations, in electronic messages, or correspondence related to this contract. Contractor occupied facilities on WPAFB such as offices, separate rooms, or cubicles must be clearly identified with Contractor-supplied signs, name plates or other identification, showing that these are work areas for Contractor or subcontractor personnel.
- The Contractor shall notify the Safety Office and the Contracting Officer, or a designated Government Representative (GR) within one (1) hour of all mishaps or incidents at or exceeding $2,000 (material + labor) in damage to DOD or contractor-owned property. This notification requirement shall also include physiological mishaps/incidents. A written or e-mail copy of this mishap/incident notification shall be sent within three calendar days to the GR, who will forward it to the Safety Office. For information not available at the time of initial notification, the Contractor shall provide the remaining information not later than 20 calendar days after the mishap, unless extended by the Contracting Officer. Mishap notifications shall contain, as a minimum, the following information:

  (a) Contract, Contract Number, Name and Title of Person(s) Reporting

  (b) Date, Time and exact location of mishap/incident

  (c) Brief Narrative of mishap/incident (Events leading to accident/incident)

  (d) Cause of mishap/incident, if known

  (e) Estimated cost of mishap/incident (material and labor to repair/replace)

  (f) Nomenclature of equipment and personnel involved in mishap/incident

(g) Corrective actions (taken or proposed)

(h) Other pertinent information.

- If requested by Government Personnel or designated government representative, the Contractor shall immediately secure the mishap scene/damaged property and impound pertinent maintenance and training records, until released by the Safety Office. Also, the Contractor and their subcontractors shall cooperate fully and assist government personnel until the investigation is finalized and closed out. Safety requirements listed in this package that do not relate to the Contractor's operations or services shall be considered self-deleting as mutually agreed by the Contractor and the Contracting Officer.
- The Contracting Officer is the only individual authorized to incur Government obligations and to make changes to contracts. The Administrative Contracting Officer (ACO) may make certain obligations and changes as provided by the Federal Acquisition Regulation part 42.302 (and supplements) or as may be specifically designated in writing by the Procuring CO. The Contracting Officer's Technical Representative (COTR), if designated, is strictly limited to the authority described in the designation letter executed by the CO. The Installation Commander's duly authorized representative is strictly limited to the tasks described and under no circumstance is authorized to incur additional obligations on behalf of the Government. The Defense Energy Support Center (DESC) is the procuring agent, and after appropriate post-award contract management transition, the WPAFB Contracting Directorate shall assume the procuring and administration contracting authority.
- IAW Condition F of Attachment 1 to the ROW, the Contractor shall be responsible for grounds maintenance (except grass cutting) of all areas within the boundaries of the ROW in accordance with Base standards. Maintenance problems caused by others (AF or a third party) will not be the Contractor's responsibility.
- IAW ROW, the Contractor shall not deliberately injure or kill protected species of wildlife (i.e., non-domesticated animals) without permission from the Contracting Officer, or other representative(s) as designated by the Contracting Officer.
- IAW Condition J of Attachment 1 to the ROW, the provisions of ROW Sections 15, 17 and 18 also cover sites identified under the Resource Conservation Recovery Act (RCRA) Corrective program.
- The Contractor shall not perform alterations to any building or structure deemed to be eligible or potentially eligible for placement on the National Register of Historic Places until approved by said officer.

J3.4 Current Service Arrangement

A large majority of WPAFB's potable water is supplied by the on-Base ground wells; in fiscal year (FY) 2002 it was over 90 percent (106,010 kGal purchased and 1,032,541 kGal produced from wells). From earlier paragraphs, it is clear that WPAFB has more than adequate ground water capacity for current and projected needs and has the luxury of being

able to purchase additional water via city connections. **It is imperative to understand that all water and pumping rights will remain with the Government.**

J3.5 Secondary Metering

J3.5.1 Existing Secondary Meters

Table 5 reflects a listing of the existing secondary meters that would be transferred to the Contractor. The Contractor shall provide meter readings for these meters IAW Paragraph C.3.3 and J3.6 below.

TABLE 5
Existing Secondary Meters
Water Distribution System – Wright-Patterson AFB

Facility No.	Location
10823	Hope Hotel Conference Area
10823	Hope Hotel Conference Area
10823	Hope Hotel Conference Area
10823	Hope Hotel Conference Area
20240	PM Pool
20240	PM Pool
31250	Commissary
31250	BX
20630	Child Development Center – outside the Base
Well #8 – Area A	Main Base
Well #9 – Area A	Main Base
Well #A – Area B	Main Base
Well #B – Area B	Main Base
Well #C – Area B	Main Base
Well #E – Area B	Main Base
Well #F – Area B	Main Base
Well #1 – Area B	Main Base
Well #2 – Area B	Main Base
Well #2b – Area B	Main Base
Well #4 – Area B	Main Base
Well #5 – Area B	Main Base
Well #1 – Area C	Main Base
Well #2 – Area C	Main Base
Well #3 – Area C	Main Base
Well #7 – Area C	Main Base

J3.5.2 Required New Secondary Meters

The Contractor shall install and calibrate new secondary meters as listed in **Table 6**. New secondary meters shall be installed IAW Paragraph C.13, Transition Plan. After installation, the Contractor shall maintain and read these meters IAW Paragraphs C.3.3 and J3.6 below.

TABLE 6
New Secondary Meters
Water Distribution System – Wright-Patterson AFB

Meter Location	Meter Description
The Installation has identified no new secondary meter requirements.	

J3.6 Monthly Submittals

The Contractor shall provide the Government monthly submittals for the following:

1. **Invoice** (IAW G.2)**:** The Contractor's monthly invoice shall be presented in a format proposed by the Contractor and accepted by the Contracting Officer. Invoices shall be submitted by the 25th of each month for the previous month. Invoices shall be submitted to:

   Name: 88 ABW/FMI
   Address: 1450 Littrell Rd
   WPAFB, OH 45433-5209
   Phone number: (937) 257-7497

2. **Outage Report:** The Contractor's monthly outage report will be prepared in the format proposed by the Contractor and accepted by the Contracting Officer. Outage reports shall be submitted by the 25th of each month for the previous month. Outage reports shall be submitted to:

   Name: 88 ABW/CEMM
   Address: 1450 Littrell Rd
   WPAFB, OH 45433-5209
   Phone number: (937) 904-2370

3. **Meter Reading Report:** The monthly meter reading report shall show the current and previous month readings for all identified secondary meters. The Contractor's monthly meter reading report will be prepared in the format proposed by the Contractor and accepted by the Contracting Officer. The report will include a summary of water quantities pumped from deep wells and a summary of purchased water from WBCD. Meter reading reports shall be submitted by the 5th of each month for the previous month. Meter reading reports shall be submitted to:

   Name: 88 ABW/FMI
   Address: 1450 Littrell Rd
   WPAFB, OH 45433-5209
   Phone number: (937) 257-7497

4. **System Efficiency Report:** If required by Paragraph C.3, the Contractor shall submit a system efficiency report in a format proposed by the Contractor and accepted by the Contracting Officer. System efficiency reports shall be submitted by the 25th of each month for the previous month. System efficiency reports shall be submitted to:

Name:	88 ABW/CEMM
Address:	1450 Littrell Rd
	WPAFB, OH 45433-5209
Phone number:	(937) 904-2370

J3.7 Water Conservation Projects

Generally, water conservation is not a critical issue by virtue of a very large and accessible aquifer. However, any new owner of the water distribution system must cooperate with the Installation in its water conservation programs.

J3.8 Service Area

IAW Paragraph C.4, Service Area, the service area is defined as all areas within the Wright-Patterson AFB boundaries, the boundaries of Huffman Radar Site GSU, and easements/ROWs granted to the AF for potable water distribution lines.

J3.9 Off-Installation Sites

The Huffman Radar site water system is described in Paragraph J3.2.1.1. The Kauffman Avenue Switching Station has no water components.

J3.10 Specific Transition Requirements

IAW Paragraph C.13, Transition Plan, **Table 7** provides a listing of service connections and disconnections required upon transfer.

TABLE 7
Service Connections and Disconnections
Water Distribution System – Wright-Patterson AFB

Location	Description
Housing Areas	As stated earlier, all housing area potable water service laterals are excluded from this package and are included in the ongoing, multi-phased Housing Privatization (HP) initiative. Associated points of demarcation are described in the ROW documents. However, as the HP initiative evolves with demolition, new construction, etc., these points of demarcation could change.

J3.11 Government Recognized System Deficiencies

The general condition of the water system is fair. Localized problems include:

- Cathodic protection system requires a complete analysis and the completion of remedial repair work.
- Some segments of water line are very old and should be replaced.
- Storage deficiency needs resolution in the West Ramp Area.

Water projects that have some form of programming action underway are listed in **Table 8;** the latest information on these projects will be available in the technical library. The Government recognizes these improvement projects as representing current deficiencies associated with the Wright-Patterson AFB water distribution system. If the utility system is sold, the Government will not accomplish these planned improvements. The Contractor shall make a determination as to its actual need to accomplish and the timing of any and all such planned improvements. Capital upgrade projects shall be proposed through the Capital Upgrades and Renewal and Replacement Plan process and will be recovered through Schedule L-3. Renewal and Replacement projects will be recovered through Sub-CLIN AB.

TABLE 8
System Deficiencies
Water Distribution System – Wright-Patterson AFB

Project/Work Request No.	Project Description	Program Amount ($000)
09422	Resolve Water Reserve Problem on West Ramp Area. 150,000-gallon tank can only be filled to approximately 1/3 capacity.	$490
030021/09659	Install 2nd trunk line supplying water from Wells 1, 2, 4, and 5 to the packed towers in Area B. (Old line has multiple leaks.)	$690
021865A/07808	Secure Water Supply System (All areas)	$200
021865/07808	Secure Water System Area B	$100
030512/03317	Install Backflow Preventers (Areas A and C)	$400
N/A	Water pressure issues in Area B.	N/A

J3.12 Right of Access to the Utility System

Exhibit A—Map of Premises

Exhibit A map or maps from the Base Comprehensive Plan or other drawings show the known locations of the utility system and are available at the Base Civil Engineering Office.

Portions of the utility system may not be fully shown on the map or maps. Any such failure to show the complete utility system on the map or maps shall not be interpreted as that part of the utility system being outside the Premises. The Premises are co-extensive with the entire linear extent of the utility system sold to Grantee, whether or not precisely shown on the map or maps.

Exhibit B – Description of Premises

B.1. General Description of the Utility System, Lateral Extent of the Right-of-Way, and Points of Demarcation:

Utility System Description:

The utility system may be composed of, without limitation, wells, well pumps, supporting emergency generator sets, water treatment equipment, valves, fire hydrants, water distribution mains, meters, booster station pumps, storage tanks, reservoirs, all related electrical controls, and computer hardware and software used to operate and control the production and delivery of water to end users on the Installation.

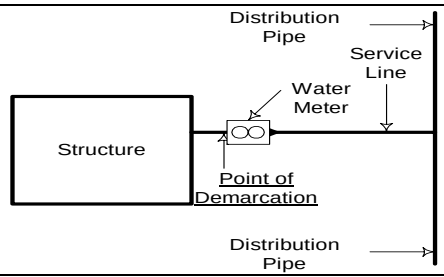
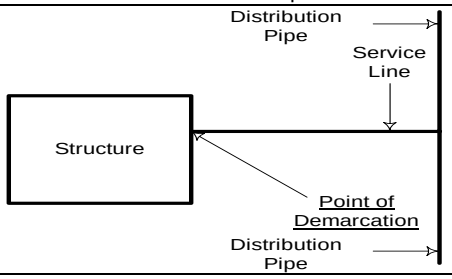
Lateral Extent of Utility System Right-Of-Way:

For pipe sizes of 24 inches in diameter or less, 26-feet-wide, extending 13 feet on each side of the utility system, as installed.

For pipe sizes greater than 24 inches in diameter, 50-feet-wide, extending 25 feet on each side of the utility system, as installed.

Utility System Points of Demarcation:

The point of demarcation is defined as the point on the utility system where ownership changes from the utility system owner to the facility owner. The table below identifies the type and general location of the point of demarcation with respect to the facility for each scenario.

Point of Demarcation (POD)	Applicable Scenario	Sketch
POD is at the water meter, backflow device, or valve (closest appartus to the exterior of the structure).	Water meter, backflow device, or valve is located on the service line entering the structure within 25 feet of the exterior of the structure.	
POD is where the service line enters the structure.	No water meter, backflow device, or valve exists on the service line entering the structure. Service valve may be within 25 feet of the structure at any time. Down stream side of the service valve will become the new point of demarcation.	

Point of Demarcation (POD)	Applicable Scenario	Sketch
If the fire suppression system has a storage tank, then the POD is located on the inlet side of the isolation valve or backflow prevention device closest to the storage tank. If no storage tank is present, the POD is located on the inlet side of the PIV or isolation valve closest to the fire suppression pumps.	**Fire suppression system** is provided flow and/or pressure by the potable water distribution system. These systems are typically dedicated to serving one facility or a small cluster of facilities.	None
POD is located on the inlet side of the PIV, isolation valve, or backflow prevention device closest to the fire suppression system.	**Fire suppression system** is connected to the potable water distribution system.	None
POD for irrigation systems is the inlet side of the backflow prevention device or isolation valve closest to the irrigation system.	**Irrigation system** is fed directly from potable water distribution system.	None
POD is the inlet side of the hose bib or water fountain assembly's connection to the service lateral. Note: A service valve may be installed within 25 feet of the hose bib or water fountain at any time. Once installed, the inlet side of the service valve becomes the new POD.	**Drinking Fountains and Hose Bibs** connected to the water distribution system (typically found at ballfields and outdoor recreation areas). No valve is located on the lateral providing water service to the drinking fountain or hose bib within 25 feet of these connections.	None
POD is the inlet side of the service valve.	**Drinking Fountains and Hose Bibs** connected to the water distribution system (typically found at ball fields and outdoor recreation areas). Service valve is located on the lateral providing water service to the drinking fountain or hose bib within 25 feet of these water use devices.	None

Point of Demarcation (POD)	Applicable Scenario	Sketch
POD is at the overhead service line's connection to the service entrance mast. Note: If an electric meter is present, or is to be installed, the owner of the electric distribution system on the installation is the owner and maintainer of the electric meter and the can. The POD for the electric meter is at the water utility owner's conductors to the electric utility owner's conductors. This meter POD applies regardless of the location of the electric utility owner's meter. The water utility owner will own the service entrance mast.	Electric power is provided to a water facility via an overhead service drop. This configuration could be found at facilities dedicated to the water utility such as a water well, pump station, or water tower.	None
POD is at the transformer secondary terminal spade. Note: If an electric meter is present, or is to be installed, the owner of the electric distribution system on the installation is the owner and maintainer of the electric meter. The POD for the meter is at the water utility owner's conductors to the electric utility owner's conductors. This meter POD applies regardless of the location of the electric meters and transformers.	ELECTRIC POWER IS PROVIDED TO A WATER FACILITY VIA AN UNDERGROUND SERVICE CONNECTION. THIS CONFIGURATION COULD BE FOUND AT FACILITIES DEDICATED TO THE WATER UTILITY SUCH AS A WATER WELL, PUMP STATION, OR WATER TOWER.	None

UNIQUE POINTS OF DEMARCATION:

The following table lists anomalous points of demarcation that do not fit any of the above scenarios.

Building No.	Point of Demarcation (POD) Description
City of Fairborn-owned meter box located along near Gate 35c.	First mechanical joint (gate valve) downstream of the City of Fairborn-owned meter box.
Family Housing – All	Connection of service lateral to main.
The Prairies Family Housing	First mechanical joint (gate valve) downstream of the Montgomery County-owned meter box.
Numerous - Backflow device or check valve containment device located interior to building structure.	Downstream side of backflow preventer.
Building 30172 - fire pumps inside and the 14″ fire main extending from the building are included in the privatization package.	Standard PODs are applicable to this situation.

B.2. DESCRIPTION OF RESTRICTED ACCESS AREAS:

Description	Facility #	Other Information
Underground Wells	Well Nos. A, B, C, E, F, 8, 9	Wellheads are located in enclosed, locked vaults.
Booster Pump Stations/Well Houses/Treatment / Ground Storage tanks (Main Base)	30851, 30852, 20086b, 20086c, 20086g, 20087, 30160, 30170, 30181, 30203, 30172, 10855a, 10855b, 20085a, 10857, 20453	Booster pumping stations, well houses and treatment facilities are located in enclosed, locked buildings. Lateral access is provided outward around the perimeter of the structure for a distance of 13′ unless inhibited by adjacent structures.
Elevated Storage Tanks (Main Base).	30177, 34045, 10291, 20348, 20222, 20460	Access to the water tower/tank is by a locked ladder/cage. Lateral access is provided outward around the perimeter of the chain-link enclosure (or tank if an enclosure is not there) for a distance of 13′ unless inhibited by adjacent structures.
Interior backflow preventers used for containment purposes.	Various – available in technical library.	Access requirements vary – see technical library.

Exhibit C – Environmental Baseline Survey

The Air Force has determined that it is not required to conduct an EBS in regard to the sale of this utility system.