

PITTSBURGH ARS, PA UTILITY SYSTEM DESCRIPTIONS

General: The 911th Air Wing (AW) installation is located in the western portion of Allegheny County Pittsburgh, Pennsylvania, within the Pittsburgh International Airport (IAP). The Base is approximately 16 miles northwest of downtown Pittsburgh in western Pennsylvania. The 911th AW encompasses approximately 115 acres (12 owned and 103 acres leased) in the eastern portion of the Pittsburgh IAP. The 911th AW has a total of 56 buildings.

System Descriptions: The electric, natural gas, and water distribution systems and the wastewater collection system are being considered for privatization. The utility system information provided here is an estimate only and is subject to change.

Electric: Exelon Energy and Duquesne Light supply the electrical power to the Pittsburgh Air Reserve Station (ARS), Pittsburgh IAP, through two primary distribution lines owned and maintained by Duquesne Light Company. Exelon Energy supplies 68 percent of the electricity while Duquesne Light supplies 32 percent of the required electrical power. The principal source originates at Duquesne's Mountour substation approximately four miles east of the Base and delivers 17,055 kilovolt-amperes (kVA) via 22.9 kilovolt (kV) overhead transmission lines. The primary is stepped down at the Base substation to 4.16 kV to feed the Base primary. An alternate source begins at the Russell Burdsall and Ward substation located three miles north of the Base, and delivers 10,313 kVA through 22.9 kV overhead transmission lines. Duquesne Light's lines terminate at the base substation (Facility 212). Automatic sectionalizing switches control the two circuits, providing automatic switching capability in the event of a power outage. A three-phase, 1500 kV transformer owned by the power company steps down the voltage to 4160 Volt (V) primary distribution for the Base. Government ownership starts at the substation demand-side (secondary) with two 1200 Amp vacuum switches protecting two 4160 V feeders. From the substation, a combination overhead/underground system serves the majority of the base facilities. The Base has a total of 55 buildings. Base drawings show approximately 8,888 LF overhead cables and 15,555 LF of underground cables. All of the PCB-contaminated electrical equipment has been replaced. The system also includes the following:

- Fifty-nine transformers ranging from 10 kVA to 750 kVA.
- Ninety-one utility poles of various heights.
- Fourteen switches (2-, 3-, 4-, and 6-way)
- 20 Buildings have electric meters installed.

There is no Supervisory Control and Data Acquisition (SCADA) system for remote operation or monitoring of the electrical system. However, the Base has programmed a Demand Side Energy Reduction initiative that will provide load shedding of building air conditioning systems when a preset demand level is reached.

The substation was constructed in the mid-1950s. The underground circuits are newer, with construction dates ranging from the mid-1960s to the present. Equipment such as transformers average in age from 25 years for pole-mounted and 5 years for those on pads. The underground cables are relatively new being installed in the 1990's; a portion of the overhead (400 area) is part of the original 1940's installation.

The existing Duquesne-owned substation is operating at its maximum capacity, and the base-owned switchgear is weak, requiring the base to restore power incrementally after outages. The distribution system is generally in fair condition, and the positioning of switches throughout the system provides a degree of backup from one circuit to another. A number of utility poles require

replacement, as do some of the strain reliefs. The Base has a total of 58 facilities of which 16 are metered.

Natural Gas: Peoples Natural Gas Company supplies natural gas to the 911th AW. Gas is brought to the Base through a 6-inch coated and wrapped steel feeder pipe operating at 40 psi. The 6-inch supply line enters the Base southeast of the main gate and runs parallel along Defense Avenue to the metering station located at Building 119. At the metering station, pressure is reduced to 10 psi, and then distributed to Base facilities through piping ranging from 0.5 to 4-inches. Thirty-six buildings have gas meters installed. The existing 18,150 LF of pipe is polyethylene, which has been inserted in the original steel lines. The polyethylene pipe has a tracer wire to facilitate locating this pipe. The metering station is the only entry point for natural gas, and other than the building regulators, this is the only point where pressure is reduced. Peoples Natural Gas owns all natural gas lines and the meter and regulator system to the point of pressure reduction; 911th AW assumes ownership of the gas lines on the “low-side” of the reducing station. Plastic isolation valves located at each building and throughout the system enable portions to be isolated for maintenance. Tracer wires on most of the piping facilitate locating lines when repairs are required. The system was extensively replaced in FY 1991. No code violations were observed during the site visit, and the system is in very good condition.

Potable Water: Water is supplied to the 911th AW from the Moon Township Municipal Authority (MTMA) via a 12-inch main. The water is metered and then delivered into the distribution system through the base’s 8-inch main. The average pressure supplied to the Base is 90 psi. The 911th AW provides no additional treatment, and the Base has no active potable water wells. Water storage is provided by a 1.5-million gallon elevated water storage tank, which is located on-base but owned and operated by the MTMA. The elevated storage tank is supplied through a 16-inch main, which is also owned by the MTMA. The elevated storage tank serves both the local community and the installation, and the MTMA reserves 300,000 gallons of water exclusively for the base’s fire protection requirements. An additional ground-level tank stores 165,000 gallons of water used only for fire protection of two flightline facilities.

The Base water distribution system is government-owned and consists of approximately 26,000 linear feet of water mains and service laterals. The majority of the mains were upgraded in 1991 with polyvinyl chloride (PVC); the remaining original system is ductile iron. Most of the base’s original system was abandoned in place during the upgrade. Most of the 911th AW water lines distribute water through a looped system; however, the system has some dead-end lines. The water distribution system is generally in excellent condition. Flow volume is good, and system pressures are well balanced. Pressures at the fire hydrants are consistently in the 90-100 psi range, with good flow. Valves, which are generally older than the distribution lines, are all accessible and in good operating condition. There are no known code violations. There are 58 facilities on the Base of which only 6 are metered.

Sanitary Wastewater: Wastewater generated by 911th AW is carried off base through a 15-inch sewer main in the southeast corner of the base, and disposed of through Moon Township Municipal Authority’s (MTMA) sanitary sewer lines and sewage treatment facility. Sewage is not metered prior to entering the MTMA sanitary sewer system; instead the Base is billed for sewage treatment fees based upon 100 per cent of its potable water consumption.

Industrial wastes are treated through oil/water separators, which subsequently discharge directly to the sanitary sewer system. The Base system meets all known regulatory requirements, and the discharge is compatible with MTMA’s requirements.

The 911th AW wastewater collection system consists of 19,640 feet of gravity-flow vitrified clay pipe. The collection system includes laterals, oil/water separators, underground holding tanks,

and collector mains. The base has no lift stations and the oil water separators are not part of this contract. Service laterals are typically 4 to 6-inches in diameter; mains range from 6 to 8-inches. The wastewater collection system is generally in fair condition. Most of the system is original and has not been lined, but the base's terrain and slopes provide for adequate flow, and base personnel report no problems with blockages or backups.

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