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DOCKET NO.: 981637-WS - United Water Florida, Inc.

WITNESS: **Direct Testimony Of CAROLINE SILVERS**, Appearing on Behalf Of Staff

DATE FILED: May 13, 1999

DIRECT TESTIMONY OF CAROLINE SILVERS

Q. Please state your name and business address?

A. My name is Caroline Silvers, and I am the lead hydrologist for the St. Johns River Water Management District's, Jacksonville Service Center and officially hold the title of Hydrologist IV P.G.. Our address is: St. Johns River Water Management District, 7775 Baymeadows Way, Suite 102, Jacksonville, Florida 32256.

Q. Please state a brief description of your educational background and experience?

A. I have a Bachelor of Science, Geology, 1980, James Madison University Senior Geophysicist, was employed by LANDMARK GRAPHICS CORPORATION, 6/84 - 10/84, where I contributed geological and geophysical expertise towards development of seismic stratigraphic software for use in a company which manufactured 3D microcomputer graphic workstations now used by oil industries worldwide. I also designed software architecture to illuminate structural and tectonic features indicative of hydrocarbon traps, and worked closely with programmers to ensure accuracy of geophysical functions and ease of software design. I marketed Landmark workstation by providing demonstrations and training to exploration geophysicists with major oil companies. I was a geophysicist, employed by DIGICON GEOPHYSICAL CORPORATION, 2/81 - 5/84, where I enhanced land and off-shore gas/oil prospect seismic data for Marathon Oil. I evaluated, tested and presented newly developed advanced geophysical software. I also investigated geophysical seismic modeling problems for sixty geophysicists.

Q. How long have your been employed by the SJRWMD?

A. It will be 14 years in August, 1999.

Q. What are your general responsibilities at the SJWMD?

A. My responsibilities include processing complex and resource sensitive consumptive use permits for the five county Jacksonville Service Center area I coordinate multi-party resource and reuse negotiations and mediate divergent interests among regulatory agencies, developers, utilities, industry, consultants, and local government. I provide daily supervision and technical support Jacksonville Service Center to two Consumptive Use permitting hydrologists, water use compliance and well construction staff. I work closely with District surface water engineers and environmental specialists to incorporate stormwater treatment design aspects that minimize ground water demands and wetland impacts. I collaborate with District Ground Water Modeling Group, USGS, Lower Basin SWIM Program and FDEP technical staff to ensure coordination and consistency with District and other agency objectives and priorities. I am an active rule development participant - Water Conservation rule, augmentation rule, and agency reuse committees.

Q. What is the purpose of your testimony in this docket?

A. The purpose of my testimony is to identify the concerns the SJRWMD has with respect to the provision of water and wastewater service within its District, and specifically within the area included in the amendment application of United Water Florida (UWF): My testimony will also address the extent to which UWF, JEA, Intercoastal Utilities and St. Johns County are capable of providing potable water service to this area in a manner that is consistent with the goals and objectives of the SJRWMD.

Q. Would you first discuss the issues of concern for the SJRWMD that relate

to the provision of potable water service by any utility in the District?

A. Yes. The District is primarily concerned with ensuring the availability of an adequate and affordable supply of water for all reasonable-beneficial uses while protecting the water and related resources of the District. Also, the District is concerned with protecting existing surface and ground water quality from degradation and, where appropriate, to improve and restore the quality of water not currently meeting water quality standards. With respect to the concern of water supply, the District, through the Consumptive Use Permitting process, evaluates the ability of each utility to adequately supply their projected water needs through their existing or proposed resources without unacceptable adverse impacts. This process involves evaluating each utility for the following: 1)whether the requested use is in such quantity as is necessary for economic and efficient utilization (evaluated through audit process); 2)whether the use is both reasonable and consistent with the public interest; and 3)whether the source of water is capable of producing the requested amounts of water. The environmental or economic harm caused by the consumptive use permit must be reduced to an acceptable amount. All available water conservation measures must be implemented unless the applicant demonstrates that implementation is not economically, environmentally or technologically feasible. When reclaimed water is readily available it must be used in place of higher quality water sources unless the applicant demonstrates that its use is either economically, environmentally or technologically feasible. The lowest acceptable water quality source, including reclaimed water must be utilized for each consumptive use. The consumptive use should not cause significant saline water intrusion or further

aggravate existing saline water intrusion problems. The water quality of the source of the water should not be seriously harmed by the consumptive use.

Q. Is the area included in the UWF amendment is located within a Priority Water Resource Caution Area (PWRCA)?

A. Yes. A Priority Water Resource Caution Area is defined an area where a water supply assessment projects resource problems are to occur if future water supply plans are implemented. The Southeastern Duval and Northern St. John's County areas were given this designation because both have significant planned growth without an identified source of water supply.

Q. What type of water demand is predicted for this area?

A. This PRWCA area, also designated as Work Group V in the Water 20/20 Planning process, has the greatest anticipated increase in water in the public supply category. Public supply needs are expected to increase from about 65.9 million gallons per day (mgd) in 1995, to approximately 112.1 mgd in 2020, or about 46 mgd (70 percent). The increase in public supply needs is a direct result of increases in population. During the same period, the population of St. Johns and Duval Counties is expected to increase by a total of about 300,900 people, from 816,500 to 1,117,400. By 2020, all other needs are also expected to increase by about 11.2 mgd, except for domestic self-supply which is projected to decrease by 4.3 mgd in 2020. Therefore, the net change in all other use categories is an expected increase of 7 mgd or 11 percent by 2020. This means that the total water use in the area of Work Group V is expected to rise during the planning period by about 53 mgd to a total water use of about 180 mgd.

Q. Are there other findings by the study that would relate to the ability

of United Water Florida, Intercoastal Utilities and St. Johns County to provide water and wastewater service to that area?

A. Yes, United Water (St. Johns Forest), JEA, and St. Johns County all have Consumptive Use Permit applications pending with the District. Intercoastal Utilities has a Consumptive Use Permit that expires August 9, 2001. In the permitting review process for this area, the District's emphasis is in evaluating each utility's ability to adequately supply the projected customer base without resulting in declines to water quality or harm to native vegetation. Each utility provides a map defining their service area, the projected population (for each of next 20 years) within that service area, the requested allocations in million gallons per year (mgy) to supply that population and the sources (ground water, surface water, reclaimed water) that will be used to satisfy their demands. In addition they conduct Reuse Feasibility Studies, perform audits of their distribution systems, develop or update Water Conservation Plans and perform required aquifer testing programs. The Water 20/20 Plan also assessed individually each water plants design capability to satisfy the projected 2020 water demand and identified potential physical deficits with each plant. The study then developed a matrix of utility-specific options to meet the anticipated demand by the year 2020. Deficit estimates represent the difference between projected needs for 2020 and the current permitted capacity. Intercoastal Utility was estimated to have an average day demand deficit (ADD) of 2.78 mgd, St. Johns County's ADD was 10.74 mgd, United Water Florida's ADD was 2.05 mgd, JEA ADD was 10.20 mgd.

Q. What were the utility-specific options for these utilities to meet these deficits?

deficits?

A. The utility-specific options to meet these demand deficits were the following. For Intercoastal Utility, the study found that it has existing facilities that will meet the 2020 ADD needs. It's deficit is based on the permitted wellfield capacity and facilities needed to meet maximum daily demand. A decrease in the system demand ration, possibly through either additional water conservation or reuse activities may help in reducing the maximum daily demand. St. Johns County Utility had the largest percentage of the 2020 needs and deficits in St. Johns County, making the development of alternative sources a technical and financial necessity. These alternatives include developing additional fresh ground water, developing a new wellfield with membrane softening in the northern portion of the county, processing a brackish water source with reverse osmosis water treatment in the southern portion of the county, building an interconnection with the City of St. Augustine, and securing fresh surface water from the lower Ocklawaha River. The City of Jacksonville had the largest percentage of needs and deficits in the Duval County portion of Work Group V. The City appears to have most of the facilities required to meet the projected 2020 needs. However, as with St. Johns County utilities, the needs are large enough to require the development of other sources. Options include new wellfields in the north grid portion of the City system, an interconnect to the south grid to convey new supply, surface water supply from the lower Ocklawhah River, sea desalting, and the potential of acquiring the private utilities within the south grid service area around the year 2005. United Water Florida (St. Johns County) was identified as having small needs, which should be met by upgrading

Q. Are there any other concerns of the SJRWMD about utilities providing service in the area at issue, that are not identified in the Work Plan V report, such as the ability of a system to satisfy their water demands without resulting in declines to water quality or harm to native vegetation and the ability of a utility to avail reclaimed water for reuse?

A. In this area referred to as Work Group V, there are ground water quality changes occurring rapidly concurrent with growth and increased withdrawals that are not extensively addressed in this plan. In southeast Duval, the concern is primarily with elevated chloride concentrations and the corresponding trends, which are evident in many of the wells. In northeastern St. Johns County, the primary concern is with elevated chlorides in the vicinity. In north central to north western St. Johns County the concern is primarily with elevated sulfate and total dissolved solids concentrations in the Floridan wells and harm to native vegetation from use of the surficial aquifer wells. In central St. Johns County (location of St. Johns Co. wellfield), the concern is with elevated chlorides and total dissolved solids in the Floridan wells and harm to native vegetation from withdrawals from the surficial aquifer.

Q. You mentioned that the use of reclaimed water is considered as part of your CUP application review process. How much consideration will be given to the ability of any of the aforementioned utilities to provide reclaimed water for irrigation or other uses?

A. In this area of limited water resources, the ability to make reclaimed water readily available for both golf courses, residential and commercial purposes will be a priority. This area is virtually undeveloped and is a

purposes will be a priority. This area is virtually undeveloped and is a prime candidate for feasibly constructing dual distribution systems within each large development. Since outside water use (irrigation) comprises almost 50% of a residential customer's consumption it is critical that lower water quality sources be used to offset what would otherwise be a potable water demand. The provision of reclaimed water for golf course, residential and commercial use in new developments would compensate or delay the need for locating and developing alternative water supplies. In addition, the District is focusing heavily on reducing wastewater discharges to the lower basin of the St. Johns and Intracoastal Waterway. Reuse implementation will either eliminate or significantly reduce effluent discharges to the St. Johns and Intracoastal Waterway. I am currently evaluating a Reuse Feasibility Study prepared by United Water for this area. St. Johns County currently provides reclaimed water for irrigation use to the World Golf Village and is preparing to expand their wastewater treatment facility (WWTF) and has committed to making available 100% of their reclaimed water available for golf course and landscape irrigation. Intercoastal Utilities currently provides reclaimed water to Sawgrass Country Club for golf course and landscape irrigation. Their reuse feasibility study indicated that any effluent in excess of what they could supply to Sawgrass would need to be discharged to the Intracoastal Waterway. It is my understanding that JEA is proposing to wholesale potable water to St. Johns County and is not proposing to accept wastewater or provide reclaimed water to any areas within St. Johns County.

Q. Do you have any other comments on the ability of the parties to provide water service to the area in question?

A. As of today, St. Johns County (St. Johns Forest), JEA and United Water are in the process of evaluating whether or not they can adequately supply their existing areas without resulting in further degradation of the resource and without resulting in harm to native vegetation. It is my opinion that none of the aforementioned utilities has adequately demonstrated that they can supply this area without resulting in further water quality degradation or harm to native vegetation. Since Intercoastal Utilities has not included this service area and the associated population and water demands in their previous Consumptive Use Permit applications, District staff has not evaluated whether or not they could adequately satisfy the demands of this amended area.

Q. Does this conclude your testimony?

A. Yes.