Technical

As evidenced by Figure B1 (provided on the following pages), the Azurix Team has the full range of technical qualifications – DBO, design, construction, permitting and operations – to ensure the success of this important component in Tampa Bay Water's Master Water Plan. Complete descriptions of all of the facilities listed here are provided in Section C of this volume.

B.1 DBO Experience

Members of the Azurix Team have participated in design-build and design-build-operate projects including:

- 20-mgd Tolt River Water Treatment Facility in Seattle, Washington
- 33-, 17- and 5-mgd water treatment plants that comprise Water Project 2000 in Orlando, Florida
- 125-mgd Crown Water Works in Cleveland, Ohio
- 3.5-mgd wastewater treatment plant utilizing membrane technology in Swanage, England

Tampa Bay Water is to be commended for utilizing the DBO approach to establish your new surface water treatment plant. DBO strategies are being implemented with increasing frequency to the direct benefit of the public entities that choose to pursue them. In fact, the Design-Build Institute of America predicts that more than half of all projects will be delivered via integrated design and-construction services by the year 2006. This increasing utilization will be driven by the benefits that can be achieved by using a DBO approach. Significant benefits that the Azurix Team will provide to Tampa Bay Water include:

- The Azurix Team provides the full range of services necessary to bring this project to fruition.
- Project administration is streamlined while project control is often increased because design, construction and operation are provided by a preassembled organization with established cooperative relationships.
- The project benefits from access to state-of-the-art technology and extensive private sector experience because each team member focuses on its core competency.
- Construction time is reduced because of the cooperative effort between the design and build components, a benefit that is further enhanced by Sverdrup/HDR's joint venture structure.
- Project costs are reduced due to condensed construction schedules, lower engineering costs and reduced operating costs, all of which are the result of the teaming and can total 20% to 30% savings.
- The private sector is better able to assume greater financial and commercial risk.

B.2 Design Experience

HDR Engineering provides complete engineering services in the water treatment and supply field, including distribution system analysis, planning and design; storage tank and reservoir design; well system design; source development; and water treatment plant planning and design.

ENR
Engineering News Record
April 19, 1999

HDR Ranked 30th in ENR Survey
Engineering News-Record's 1999
Other categories and HDR survey ranking:
#11 - Top 20 Water
#9 - Top 20 Sewer/Waste

HDR provides a total water cycle approach from source development through distribution system design. Completed projects range from planning and design of facilities serving several thousand people to the design of the 175-mgd granular activated carbon water treatment plant in Cincinnati, Ohio, which represents a milestone in modern water treatment. HDR is recognized nationwide for its expertise in the water field. Since 1987, HDR has received 18 awards for excellence on water and wastewater projects.

In addition to its award-winning designs, HDR is respected for its leading-edge technical personnel. HDR researchers have twice won the prestigious

Figure B1 - Relevant Azurix Team Experience

Project/Location	Size	DB/DBO	Design	Construction	Permitting	Operations	Relevance to Tampa Bay Water
Semper Water Treatment Plant Westminster, Colorado	44 mgd		X	X	X		• SCADA system additions • Environmental concerns • Construction sequencing • SDWA compliance • Constructability coordination/scheduling • Chemical systems replacement/upgrade • Filter rehabilitation/upgrade
Swanage Wastewater Treatment Plant Swanage, England	3.5 mgd	X				X	• Membrane technology – largest submerged membrane technology plant of its type in the world • DBO project
Tolt Water Treatment Plant Seattle, Washington	120 mgd	X				X	• Guarantor of DBO • Large water treatment plant • Surface water • Ozonation • Response to environmental/archeological concerns
Verde Water Treatment Plant Phoenix, Arizona	50 mgd		X				• Plant SCADA system • Filter and chemical system rehabilitation/upgrade • Constructability coordination/scheduling • New administration building • SDWA compliance • Solids handling facilities
Wastewater Facilities Expansion Columbus, Ohio	102 mgd 198 mgd			X			• Large treatment plant expansion • Construction management • Strict deadline requirements
Wastewater System Expansion San Diego, California				X			• Construction management of major treatment facility
Water Project 2000 Orlando, Florida	33 mgd 17 mgd 5mgd	X	X	X	X		• Design-build water treatment plant • Fast track permitting • Florida project with comparable capacity • Same key construction management staff • Same subcontractor pool as for Tampa Bay Water project
Weymouth and Portland Wastewater Treatment Plant Weymouth, England	23 mgd	X	X		X	X	• DBO project • Scheduling constraints • Permitting deadlines • Response to environmental/neighbor concerns
Woodward Avenue Water Treatment Plant Hamilton, Ontario	190 mgd					X	• Large treatment plant • Water treatment plant operations • Surface water

AWWA/Research Foundation Award for most valuable water research contributions. In addition, HDR has been recognized by the United States Environmental Protection Agency (EPA). Since 1974, the EPA has called upon HDR to develop a variety of technical source and guidance materials. These documents assist the nation's 55,000 public water suppliers in understanding the complexities of the new drinking

water regulations as well as complying with them. Most recently, HDR staff from 12 offices developed a series of eight companion guidance documents to the two newest regulations – published by EPA in December 1998: The Interim Enhanced Surface Water Rule and Stage I of the Disinfectants/ Disinfection By-Products Rule.

ENR
Engineering News Record

Jacobs Sverdrup Ranked 5th among the top 100 Design-Build companies in 1999 ENR Survey

#5 – Top 100 Design-Build Companies

#14 – Top 100 Contractors

#3 – Top 500 Design Companies

Design details can save money in the operation and maintenance of water treatment facilities. HDR works with municipalities to improve the operation and efficiency of treatment plants. HDR is nationally known for contributions to the field of facility optimization and energy conservation in municipal treatment facilities. In addition to having performed more than 100 audits at water and wastewater facilities, HDR serves as an ongoing consultant to major utilities and the U.S. EPA and authored the Electric Power Research Institute's Handbook of Electrical Optimization for Water and Wastewater Facilities. HDR's optimization expertise will save Tampa Bay Water's members' money during the life-cycle operation of the new plant. HDR is committed to focusing their technical resources and expertise on Tampa Bay Water's Surface Water Treatment Plant.

B.3 Construction Experience

Sverdrup professionals have helped build water management systems, transportation networks, ports and municipal facilities all over the world. With comprehensive planning, and design and construction capabilities, the company offers single-source solutions to complex problems. Strong experience in design-build and construction management means that Sverdrup Civil can assume full project responsibility or provide management and design support to meet aggressive schedules. In addition to its construction expertise, Sverdrup Civil also offers design experience. As a licensed Florida general contractor, Sverdrup provides design-build and construction services throughout the state and was named "Contractor of the Year" for projects of more than $2 million by the Florida Chapter of the American Public Works Association.

Sverdrup Civil's professional design-build approach offers client-focused capabilities that deliver a competitive project within budget, schedule, and with quality parameters. Sverdrup's design-build approach has become so prominent that it received a service mark for its delivery of capital projects. The service mark TPM represents "Total Project Management," and is unique to Sverdrup projects.

B.4 Regulatory Compliance and Permitting Experience

Because of our local presence, the Azurix Team has extensive relevant experience in the preparation of various permit applications and securing permits required in Florida for public works facilities. This experience includes permits related to water and wastewater facilities, the construction of roadways, refuse-to-energy plants, landfills, jails, buildings and pipelines. In many cases, these facilities require the issuance or renewal of operating permits. The design-build team members have comprehensive experience working with many of the local permitting agencies including:

- Southwest Florida Water Management District (SWFWMD)
- Hillsborough County Environmental Protection Commission (EPC)
- Florida Department of Environmental Protection (FDEP)
- U.S. Army Corps of Engineers (USACOE)
- Florida Game and Freshwater Fish Commission
- U.S. Fish and Wildlife Service (USFWS)

The end result of our experience is project successes that are built on our Team's proactive philosophy to the permitting process. This philosophy begins with identifying all required permits for a project and immediately meeting with the appropriate agencies to gain input on their needs for a complete permit package. This is critical since an incomplete permit submittal can result in project delays. In many cases we coordinate with agencies that at first may appear not to be involved in the permitting process. This determines whether they could be involved at a later date or if they have issues we may be able to resolve.

Throughout the course of the project, as-needed and regular agency meetings ensure that the information being collected and the analyses being performed will meet all agency needs.

One of several examples of our experience and positive permit attitude is the preparation of the Water Use Permit (WUP) for the Tampa Bay Water Alafia River Project. During the application process the permitting agency, SWFWMD, commented frequently on the importance and benefits of HDR's early coordination efforts and follow-up communications. Follow-up is not limited to office meetings. At HDR, follow-up means phone calls, visits, faxes, and transmittal of electronic files all aimed at communicating effectively.

On the Alafia River WUP, the agency issued a proposed agency action for issuance of the permit, without changes to HDR's permit recommendations, within four months of submittal for this major surface water withdrawal permit. As indicated, proactive movement and responsiveness are instrumental during the preparation and submittal of permit applications. For the Alafia River WUP, the SWFWMD realized after our submittal of the original application, that a Conceptual Environmental Resource Permit (ERP) would be required for the intake structure proposed on the banks of the Alafia River. HDR's scientists and engineers prepared a conceptual permit application within 30 days of notification that the information was required. This effort required survey, wetland delineation, in-field agency meetings, and conceptual design plans including intake structures and erosion control plans. SWFWMD staff issued a Proposed Agency Action after minimal comments and questions regarding the permit application. The SWFWMD Board then issued an uncontested conceptual ERP.

Similarly, Sverdrup has both recent and extensive experience in permitting three water treatment plants that total nearly $60 million, for the Orlando Utilities Commission (OUC) through design and construction of the Lake Highland, Kirkman, and Southeast plants. The Lake Highland building and site permits were both obtained from the City of Orlando in less than one month from the time the permit applications were submitted, with little or no comments. This was due to the number and quality of the pre-application meetings and subsequent continuous communications with the reviewers. The concept of the two-stage building permit (one for site work; one for the building) was not typical for the City, and had to be sold at all levels. This two-step design process enabled the site portion of the project to begin four months earlier, keeping the overall project on schedule. Also, the Water Management District permits and the FDEP permits were received on schedule with little or no comment.

An overall Consumptive Use Permit (CUP) for the entire OUC water system included eight permitted wells, six of which have been constructed. Sverdrup and its geohydrologic subconsultant worked with OUC in obtaining the permits. Additionally, Sverdrup obtained a CUP for two new wells at AT&T in south Orange County, one of which is constructed and in service.

Sverdrup has also worked with FDEP and the Water Management Districts in obtaining Wetlands Resource Permits for water supply and wastewater projects. These projects include the Bennett Road Bypass Facility, the Lake Nona Pump Station/Force Main, and the Hunter's Creek/Meadow Woods Interconnect project in Central Florida. These projects also have included wetlands permitting with the U.S. Army Corps of Engineers and Orange County's Planning Department (Wetlands Conservation).

The design-build team members' extensive experience in obtaining operating permits for various utility projects ensures that the Tampa Bay Water-Azurix Team will meet those critical deadlines. Agencies have commented that our permits are complete in nature and, as a result, review comments have been minimal. The Team has, in many cases, assisted utilities in transforming their construction permits into operation permits as facilities come online.

B.5 Operation Experience

Azurix and its subsidiaries currently operate approximately 200 drinking water treatment facilities serving a total population of nearly 5,000,000, including the 190-mgd Hamilton-Wentworth, Ontario surface water

Figure B2 - Key Staff

Position	Key Staff Member	Location During Project	Years in Prof.	Licenses/ Certifications	Relevant Experience
Project Director	Richard Harville	Houston, Texas	25	Grade 4 Wastewater, ABC Grade 5 Wastewater, California	• Managed water and wastewater facilities ranging from 1 to 150 mgd and utilizing a variety of technologies • Numerous design-build-operate projects, including the first DBO project for CH2M Hill in Biddeford, Maine • Airport, office complex and power plant DBO projects
Project the Manager	Jerry Phillips				• Extensive project management experience in design and equipment selection and construc-tion of water and wastewater treatment facilities • Expertise in process-mechanical equipment layout and procurement, startup and testing of equipment and managing the construction process
Deputy Project Manager	John Koch		31		• Prepared numerous operation and maintenance manuals for water and wastewater treatment plants • Design and construction manager for water and wastewater treatment plants. • Experienced in operations reviews
Design Manager/ Project Engineer	Jeff Glover	Tampa, Florida			• 19 years of design experience in the design, operation and troubleshooting of municipal and industrial water and wastewater treatment plants • Technical advisor to the Water and Sewage Technical Committee of the American Society of Civil Engineer's technical council of lifeline earthquake engineering
Construction Manager	Jim Lipo	Tampa, Florida			• 31 years of experience providing project management for water and wastewater treatment plant projects • Managed all project operations, including estimating, buying, pre-planning, staffing, cost controls, cash flow, construction operations, safety and project closeout • Serving as the Project Director for the OUC Water Project 2000
Permitting Manager	Ed Copeland	Tampa, Florida	25		• Project manager for the Tampa Bay Water Regional Reservoir design (Stage B) project • Has served Tampa Bay Water continuously for more than 10 years
Design Engineer, Civil	Guy Wills	Orlando, Florida			•
Design Engineer, Mechanical	Paul O'Brien				•
Design Engineer,	Henry Antshel	Charlotte, North			•