

# CHASTAIN-SKILLMAN, INC.

ENGINEERS • ARCHITECTS • SCIENTISTS • SURVEYORS

## CONSULTANT'S UPDATE

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### CHASTAIN-SKILLMAN JOINS AS A PARTNER IN THE FLORIDA STATEWIDE TOPNET RTK NETWORK

By Robert F. DuBois, PLS



Chastain-Skillman has joined as an owner-partner, along with forty other partners, to form a state-wide Global Positioning System (GPS) network by purchasing and hosting a base receiver and antenna at our Lakeland office location. Chastain-Skillman will be the exclusive provider of the network in the Lakeland and surrounding areas with privileges granted to all our offices. The network is designed to allow each partner and subscriber the exclusive privilege to receive correction information to

use the Real Time Kinematics (RTK) surveying method utilizing GPS technology.

The current network consists of forty-one partner-owned base stations throughout the state of Florida. Each base station transmits a correction factor that the partners and subscribers of the network receive by wireless modem. The correction factor is directly transmitted to the field personnel on the project site. The correction factor is required to be applied to correct the ambiguities in the GPS signal for accurate RTK surveying. Correction factor permits the field personnel to

*(RTK Network—Continued on page 2)*

### PROJECT RE-DEVELOPMENT: INQUIRIES WITH THE WATER MANAGEMENT DISTRICT

By William A. Hartmann, PE



The times, they may be changing, at least the way the Southwest Florida Water Management District views project re-development and the (potential) need for an Environmental Resource Permit (ERP).

Over the years, it has been a reasonable conclusion that much of the re-development of existing sites has qualified for an "exemption" from drainage permitting. The exemptions essentially qualified on the basis that the project improvements had been constructed prior to 1984 (i.e., "existing"); the proposed activi-

ties would not constitute an "alteration" such that there would be no increase in pollutant loadings; the manner and points of discharge would not be changed; there were no known flooding issues associated with the existing improvements; there were no issues associated with floodplains; and so on. (The definition of an "alteration" is found in the District's Basis of Review, and describes these parameters.)

By and large, re-development requests have consisted of a client desiring to re-develop an existing site with pavement and buildings. A common example of this situation is an out-parcel within an existing shopping center.

*(SWFWMD Inquiries—Continued on page 3)*

### EOH NEWS

- Revised Florida Mold Legislation Status:

→ *HOUSE Review Committee*  
(as of 4/24/06)

- EPA Offers Mold Course on the Web

→ [www.epa.gov/mold](http://www.epa.gov/mold)

→ [www.epa.gov/mold/moldcourse/moldremediation.pdf](http://www.epa.gov/mold/moldcourse/moldremediation.pdf) (print course text)



- EPA Develops a Relative Moldiness Index (RMI) Based on Mold-Specific Quantitative PCR Analysis

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work without post-processing the surveying data. Transmitted correction factors will be received, and acceptable accuracies will be achieved within an approximate twenty-five mile radius from a base station. Utilizing professional surveying practices, one base point may be used to survey vast areas by incorporating only one GPS receiver into the surveying effort. Additional receivers may be used on the same project to expedite the surveying.

Prior to the conception of the GPS network, performing a GPS survey required the configuration of a minimum of two receivers, within a limited 3 to 6 mile range of each other: one receiver dedicated as a temporary remote base station

receiver and the other as a rover receiver. The base station receiver would be placed in a remote area, with extensive effort invested to protect the receiver from being tampered with, or even stolen, while the survey is being performed. On each day of the project, the temporary base station would have to again be set up for that day's surveying activities. In some cases, the sites for the remote base may be miles away from the surveying project. The roving receiver is used directly by the surveying team to collect relative information for the project.

The GPS network has eliminated the need for a temporary remote base station and all the associated effort. The receiver previously utilized for temporary remote base station duty, may now be utilized as an

additional rover receiver to either double the amount of information gathered, or as a receiver for another simultaneous project. Also, the restriction of distance from a base is practically eliminated.

Currently, Chastain-Skillman utilizes four Topcon rover receivers on the network and one stand-alone Trimble GPS rover and base receiver combination. With the addition of two 4x4 utility vehicles and reduced limitations of GPS correction factors, access for surveying is virtually unlimited.

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## PLEASE JOIN US AS WE WELCOME OUR NEW HIRES ...

### IN LAKELAND

Chastain-Skillman, Inc. is pleased to announce that **Tom Jackson, PG**, has joined the firm. Tom brings a wealth of permitting/regulatory experience from his previous employment with the Southwest Florida and St John's River Water Management Districts. His focus with Chastain-Skillman will be in the areas of water use permitting, ground water modeling, and water resource investigations. Tom earned his B.S. and M.S. degrees in Geology from the University of South Florida, Tampa, in 1987 and 1991 respectively.

Lakeland's Environmental Engineering department welcomes three new hires: **Glenn Folsom, Charles Knotts, and Sheila Carpenter-van Dijk**. Glenn, a former intern at Chastain-Skillman, is returning to us after graduating from Georgia Tech. He will be providing environmental engineering services to our clients - focusing on planning, linear utilities, and water treatment systems. Chuck has both his B.S.(1972) and M.S. (1973) degrees in Civil Engineering from Purdue University. He was an adjunct professor at the University of South Florida in Tampa in 1990-91. Chuck will be responsible for project management and engineering design on groundwater recovery and treatment systems, landfill leachate treatment systems, and domestic wastewater systems. Sheila earned her B.S. degree in Civil Engineering from the University of South Florida in 1996 and has completed a Graduate Certificate in Desalination Technology. Sheila's extensive Florida experience includes bridge and roadway construction and inspection, as well as environmental and solid waste engineering design and permitting.

Lakeland Surveying welcomes back **Richard Noland, PSM**. After a brief stint with a public surveying agency, Richard has rejoined the firm as a Senior Project Manager.

**Student on Loan! - Mark Livesay** will spend his summer break by assisting the Lakeland Civil/Environmental groups. Mark is studying Civil Engineering at the University of Florida and we welcome him aboard for the summer.

### IN TAMPA

Our Environmental & Occupational Health group is excited to welcome back **Wilson Bull, MPH** to the Tampa office. Wilson is rejoining Chastain-Skillman as a Project Manager/Industrial Hygienist .

### IN SEBRING

**Ralph Whisler, III, PLS**, has also joined our firm and will be working as a Senior Project Manager in the Sebring Survey department. Ralph comes to us from Polaris Surveying in Lake Wales, a business he owned for 13 years. Also **David Cole**, a previous employee for Ralph at Polaris Surveying, has joined Chastain-Skillman as an Instrument Technician.

(SWFWMD Inquiries—Continued from page 1)

Another example might entail a small business facility (i.e., gas station) that would be demolished completely to make way for a new business of similar improved areas.

In view of the above scenarios, the evaluation of “permit inquiries” by the Water Management Districts is taking on a direction that is likely to be perceived differently than the way things may have been done in the past. A recent example that was dealt with out of the Lakeland Office underscores what the Chastain-Skillman team and their clients may experience.

Project specifics for the **existing site** were characterized as follows:

- Existing site was an outparcel within a shopping center that was in place for a number of years (i.e., prior to 1984).
- The site was developed at 100% impervious with one building and pavement.
- The site runoff patterns drained internally (via sheetflow) across the existing pavement to inlets within the shopping center.
- The site had a relatively short period of “dormancy” (abandonment) prior to the client purchasing for re-development. (The period of dormancy can be somewhat subjective and needs to be well-documented.)

Project specifics for the **proposed site** were outlined as follows:

- The site was to be re-developed with a new building and pavement. Although some pavement was to be removed, most of the existing pavement would be used in its current state and/or resurfaced as appropriate.

- An overall reduction in the amount of impervious area was expected, with a net reduction in the vehicular/pavement areas.
- The site runoff patterns were to remain essentially unchanged in the re-developed state.
- The local government was requesting the developer/consultant to provide a copy of an approved District drainage permit or a permit “exemption” before they would process their associated approvals.

For the above scenario, an exemption was granted. However, the *key* to the exemption granted by the Water Management District in this case was due to the time of dormancy, which had been deemed to be

*It should not be an assumption that the project is “exempt” from District permitting.*

relatively short. Otherwise, the above scenario would have required an Environmental Resource Permit prior to the initiation of construction. The (drainage) permitting would have likely entailed a stormwater management system that addressed water quality concerns. For the illustration given above, a stormwater treatment system that used underground storage chambers would have been necessary to meet the District’s treatment requirements in order to maintain the cli-

ent’s expectation of a high percentage of usable area. Although the storage chambers weren’t necessary for this situation, one can quickly see the obstacles that could have been encountered involving existing infrastructure, underground utilities, poor soil conditions and so on.

As a final footnote to this article, one needs to bear in mind the importance of having an “active” site that can demonstrate an inherent pollution loading. By this, it is meant that the site should have an ongoing (historic) usage of vehicular traffic, buildings and other improvements. Moreover, when coaching a client as to proceeding with demolition work, it may be best to hold off with this activity until it is demonstrated to the District that the site has had a relatively active use/history and that the new land use will not constitute a significant alteration.

In closing, it should not be an assumption on the part of the consultant or the client, that the project is “exempt” from District permitting and, when putting together a project proposal, there should be a provision to cover potential permitting when crafting a contract for services.

Yes, the times, at least the way they have been perceived in the past, may be changing.

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## SPECIAL ANNOUNCEMENTS

Under the **FDEP Preapproval Program**, Chastain-Skillman’s Environmental Risk Group will be implementing/constructing a remediation system at a major central Florida industrial center. The system is scheduled to be operational for nine months. Remediation efforts will involve the technologies of Air Sparging and Soil Vapor Extraction to strip contaminants from the groundwater as well as enhancing biodegradation of remaining contaminants by supplying indigenous microorganisms with oxy-

## PATHOGENS—MAKING A COMEBACK?

By James R. Chastain, Jr., PhD, PE, MPH



In March, I was able to attend the International Conference on Emerging Infectious Diseases in Atlanta. The biennial conference sponsored by the Centers for Disease Control and Prevention and the World Health Organization provides an opportunity for medical and public health researchers to share their findings on a wide array of disease status, treatment and research needs from around the globe. Obviously, Avian Influenza (bird flu) was the subject of many papers, but that was just one of many diseases addressed. Numerous presentations were made that also discussed the factors contributing to these emerging (or reemerging) diseases. Because of the advances in medicine and public health over the last century, it is easy to adopt a complacent attitude toward the threats that these diseases present.

Whether the avian flu ever develops into a human threat or not, a repeating theme of the conference was that it is highly likely that we will face a pandemic(s) of some sort within our lifetime. Why make a statement like that? Don't we have modern medicine and state-of-the-art technological means to fight diseases?

While we do have technological tools that are orders of magnitude more advanced than previous generations which can produce marvelous results, it must be remembered that there are other trends moving against us in that battle, too. We live in an ecosystem that is highly interdependent and changes are occurring. Those changes will ripple through the system in ways we really don't understand at this point. To elaborate on this in detail is well beyond the scope of this article, but it might be useful to sketch some of the key drivers.

Recall that human infectious diseases are caused by pathogens that circulate through the environment. They are (or have been) associated with other species which can act as hosts, reservoirs, amplifiers, or vectors of the disease. As with the avian flu, in its current form it is primarily lethal to bird species, but has limited effect on humans. The concern is that it will follow the pattern of many of our current endemic pathogens and mutate to a form that is highly infectious to humans. A study of the history of plagues and diseases show this to be a repeating pattern. The means by which these changes occur typically are associated with intimacy of species contact, the number and frequency of contacts and the susceptibility of the various hosts.

As a starting point, let us acknowledge that among other things food, water, energy and appropriate forms of shelter are key components to sustainable life. Considering food only for the moment, we understand all forms of life are in competition for protein. Directly or indirectly every living being survives at the expense of others. The endless transfer of protein is a primary component of the food chain (actually better characterized as the food web). Everything from the smallest virus to the largest animal competes in this arena. Given this setting, consider the following factors: (a) increased human population, (b) intensification of agriculture, (c) globalization of trade and (d) global climate change.

Countering the increasing improvements in medical technology is the

significant increase in world population. The United Nations estimates that in 1997 there were approximately 5.7 billion people on earth and by the year 2020 there will be approximately 7.5 billion people. It is helpful to divide the population estimates into assessments of the developed countries and the developing countries. This breakdown is presented in Figure 1.

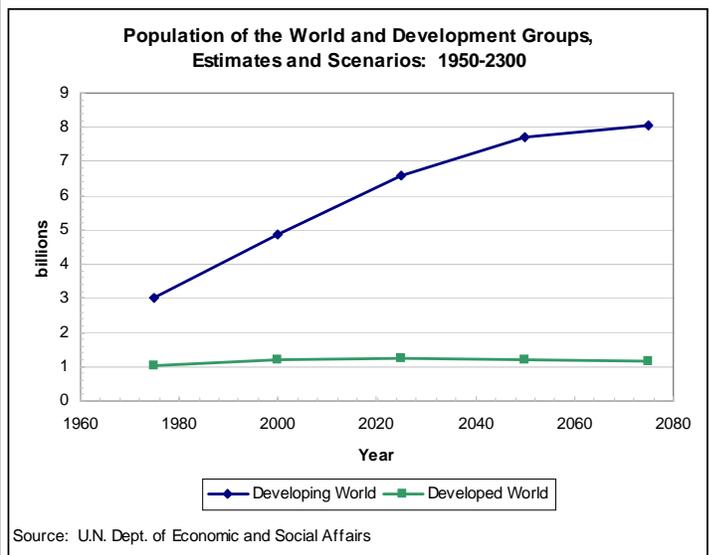


Figure 1

Notice that while the population of developed countries is projected to stay relatively constant, the population of developing countries is growing at a rapid pace. When one considers the economic implications of this population increase, the need for additional food, water, energy, shelter, and employment is sobering. This is not to necessarily predict a Malthusian future because technological developments can work to address some of these needs, but it does require a serious assessment of the implications.

In order to feed the world population, it is necessary not only to produce sufficient foodstocks but also to distribute them where needed. Using meat consumption as one component of the needed protein in a diet, the United Nations Food and Agriculture Organization and the International Food Policy Research Institute have estimated the necessary meat consumption trends over time (see Figure 2).

At this point let's pause to consider the implications of these graphs. There will be a marked increased demand for food, water and other services. Unless the developing areas can make significant improvements in relatively short order, there is an increased risk of famine and pestilence in certain areas. A malnourished population has always been associated with increased risk of disease. Also, because of the need for meat products, there tends to be a close physical association with food animals (chickens, pigs and cattle) with family or population units in the developing countries. It so happens that many disease mutations occur as a result of these associations. In this setting you can imagine their view of outsiders sweeping in and ordering them to kill their poultry or livestock (as

(Pathogens—Continued from page 4)

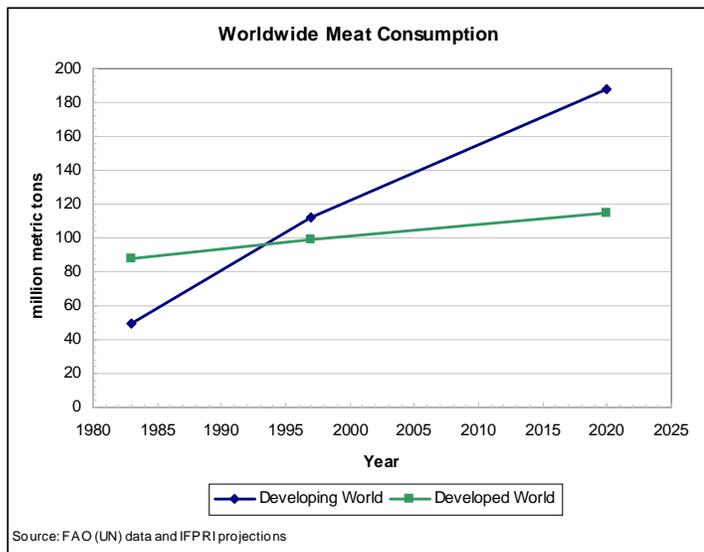


Figure 2

health authorities are doing with the avian flu). Given that the fact that those animals represent a key part of their dietary and economic sufficiency, destroying them, even with compensation, is a difficult thing. As the population grows and such demands are made, will there be sufficient food replacement volumes available to those who have lost their animals? Maybe...or maybe not...depending on the magnitude of the purge events and the ability to timely transport adequate replacements to target areas.

Since the end of World War II and especially over the last 30 years, there has been an amazing expansion of trade and interlinking of world economic interests. This globalization of trade has resulted in many economic benefits and has been spurred by improvements in transportation and technology. One factor that impacts public health is the speed at which diseases can travel across the globe. Figure 3 presents an interesting graphic that highlights this fact. In addition to the speed with which people (and diseases) can quickly move from one area to another, the trade in

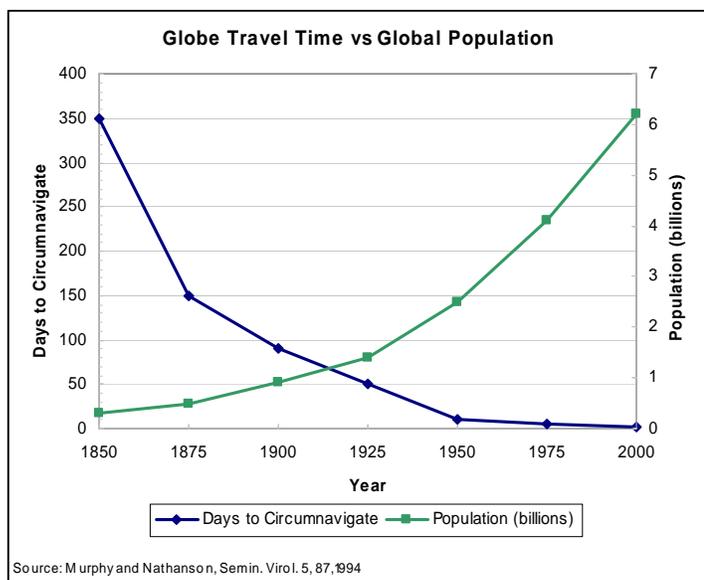


Figure 3

livestock and food products also is moving with increased range across the globe. According to a recent article in Nature magazine, a number of experts believe that global trade (legal and illegal) is more of a threat to flu migration than the seasonal migration patterns frequently mentioned in the news. Among the comments that they make is that diseases tend to migrate from east to west while avian flyways are primarily north and south. No doubt all these factors play a part in the spread, but they make a very strong case for the impact of human trade on the migration. This factor (especially smuggling or unmonitored trade) can only become an increasing issue if widespread culling of birds or animals is required as a disease control measure.

Also, if the global warming trends continue to manifest themselves as many predict, major impacts on weather events and temperature trends could follow. This in turn has a direct relationship to disease patterns and development. As global warming patterns establish themselves, they will encourage changes in ecosystems and will foster increased microorganism growth and geographical range. This is already being seen in Alaska and other polar areas where glacier melt and habitat stresses are beginning to manifest. Polar zones and coral reefs are among nature's more sensitive indicators of this global climatic stress. As one studies infectious disease development over time, common themes are tropical climate areas, population concentrations and/or movement, poor hygiene, close contact with animal populations (esp. pigs, chickens, cattle, dogs) and their associated vectors (fleas, ticks, mosquitoes). All of these factors are emerging in increasingly strong relationships as outlined above.

While dramatically improved microbiological tests and vaccines are available, our ability to manufacture sufficient doses of the vaccine to respond to a pandemic event is woefully limited when compared to the population to be treated. As the world population increases, the competition for access to manufacturing capability and supplies will be fierce, unless significant improvements in cycle times can be achieved.

While some of the presentations presented at the conference were disconcerting, we are still better prepared than past generations. The primary message was one of renewed diligence in combating microbial enemies that are taking new forms. From a local perspective, community planning to deal with the management of widespread illness will be important because needs will quickly outstrip the medical/public health infrastructure's ability to respond. Businesses should develop a strategy for operating during a crisis event such as a pandemic. This is difficult, but some guidance is available and more will be developed in the future. For the time being, it may be helpful to refer to the following websites for information:

- [http://www.uschamber.com/issues/index/defense/pandemic\\_influenza.htm](http://www.uschamber.com/issues/index/defense/pandemic_influenza.htm)
- <http://www.pandemicflu.gov/plan/businesschecklist.html>
- <http://www.whitehouse.gov/homeland/pandemic-influenza.html>

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## RECOVERY STRATEGY AND NEW SWUCA II RULES APPROVED BY SWFWMD

By Thomas E. Jackson, PG



The Southern Water Use Caution Area (SWUCA) encompasses a 5,100-square-mile area within 8 counties in the southern part of the Southwest Florida Water Management District (SWFWMD). This area includes all of DeSoto, Hardee, Manatee, Sarasota, and portions of Charlotte, Highlands, Hillsborough and Polk counties (see map). SWUCA water resource concerns include depressed aquifer levels which cause salt-water intrusion and contribute to reduced flows in the upper Peace River and lowered lake levels in upland Polk and Highlands counties.

A Recovery Strategy and new rules (both subject to additional minor revision) relating to water resource management and regulation within the SWUCA were recently approved at the March 2006 SWFWMD Governing Board meeting and further changes were approved at the April Board. The proposed SWUCA II rules were published in the Florida Administrative Weekly on May 12, 2006. This notice triggered a timetable for parties to request a hearing to further address any issues they would like changed. Additional information on the SWUCA, including the March 2006 Draft Recovery Strategy (to be updated to reflect any substantive rule changes) and proposed SWUCA II Rules, is available online at the SWFWMD website at the following link: [www.swfwmd.state.fl.us/waterman/swuca/SWUCA.htm](http://www.swfwmd.state.fl.us/waterman/swuca/SWUCA.htm).

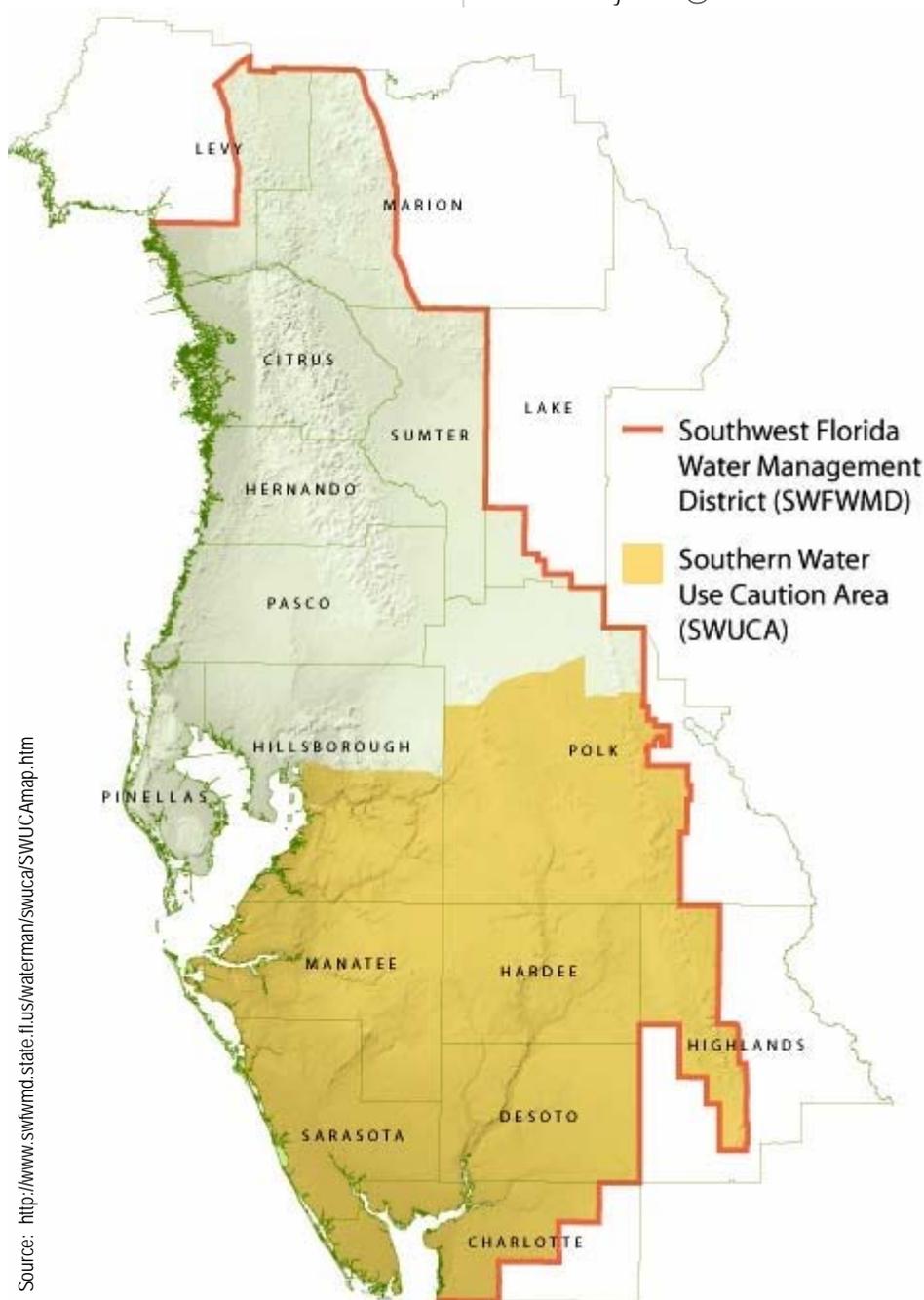
With respect to water use permitting, please keep the following in mind:

- Current plans call for implementation of the new SWUCA II Rules on January 1, 2007. Some details in the rules may change slightly before implementation.
- Significant changes (e.g., net benefit requirements) are expected to occur in the permitting process, and the permitting of additional water quantities above

those currently permitted is likely to become more complex when the new rules are implemented.

- Water users in need of a WUP modification, WUP renewal, or a WUP for a new use should ensure that their permitting plans and schedule take into account the SWUCA Recovery Strategy and proposed SWUCA II Rules.

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## CHASTAIN-SKILLMAN EMPLOYEES PLAY MAJOR ROLE IN WORLD WATER & ENVIRONMENT CONGRESS

At Chastain-Skillman, we take pride in the professional development of our employees. An important part of that development occurs through major conferences, such as the American Society of Civil Engineers (ASCE) World Water & Environment Congress. During these ASCE events, up to 1000 engineers, faculty, and regulators from around the U.S. and around the world gather to share information and expertise.

This year's ASCE World Water & Environment Congress was held in May in Omaha, Nebraska. For four days, attendees dealt with topics ranging from Water & Wastewater System Security to Groundwater Modeling to Sustainable Development. There were also numerous committee meetings at which the work of ASCE is accomplished.

Karen Karvazy, P.E., an environmental engineer in the Tampa office, played an especially significant role in the Congress. She was co-chair of a series of sessions dealing with Sustainable Development. These sessions included noted speakers from the U.S. and outside the nation and topics ranging across the entire field of environmental engineering. These sessions were well-attended and laid the groundwork for several future projects in sustainable development.

Ms. Karvazy also serves as the chair of the Water Pollution Control Committee. This group, which is responsible for many of the recognized ASCE manuals, such as "Design of Wastewater Treatment Plants", continues to promote new ideas and concepts in wastewater treatment and reuse. Some of the tasks underway by this committee include providing a new series of sessions for the 2007 Congress related to wastewater reuse as well as promoting a study related to self-cleansing forces for improved and site-specific design of sanitary sewers.

Dr. George Anipsitakis, senior environ-

mental scientist in the Lakeland office, spoke in the "Applied Research" track. His paper, which was entitled "Chemically Induced Redox Reactions in Water Treatment: A Summary of Advanced and Direct Technologies", built upon his prior research in using sulfate-based compounds to achieve advanced oxidation. With the emerging issues of micro-pollutants, such as endocrine disruptors and pharmaceuticals, advanced oxidation technologies (AOTs) will become more important in the future in reducing or eliminating these compounds.

Doug Jones, P.E., senior project manager in the Tampa office, currently serves as chair of the Water Supply Committee. This committee also met at Omaha to discuss on-going committee activities. As noted above, endocrine disruptors are becoming a major topic of discussion, and this committee is proceeding with plans to sponsor several sessions at the 2007 Congress in Tampa. In addition, the committee will hold several training workshops on laboratory methods used to detect endocrine disruptors.

In addition to these committee activities and the presentations, Chastain-Skillman employees also attended multiple sessions. The papers presented came from across the nation and from a significant number of other countries. As Glenn Daigger noted in his keynote lecture, roughly 40% of the world's population does not have access to clean and safe drinking water. Although the U.S. has made great strides in providing adequate treatment of both water and wastewater, many of the technologies which are used here are not transferable to other countries. In addition, with the on-going energy issues, there will be an ever greater need to develop efficient processes. These processes will also need to address issues such as micro-pollutants while providing an effluent suitable for reuse.

### RECENT PROJECTS AND CONTRACTS OF INTEREST

- The **School District of Hillsborough County** awards Chastain-Skillman, Inc. a major asbestos survey, abatement and demolition project of 21 buildings at the Tampa Housing Authority Rembrandt Complex. Future plans for the site include a new school facility and public recreation area. Project completion is scheduled for early September.
- **English Oaks, Phase III** was awarded to Chastain-Skillman, Inc. For this fast track project, our environmental engineers will study and select the most viable cross-town route, and then design a major force main to carry waste originating in the Carillon Lakes area, across town and ultimately to the Glendale WWTP.
- Our Tallahassee office was awarded the **Pebble Hill Estates** development project in Marianna, FL. Chastain-Skillman, Inc. will prepare construction drawings and permit applications for this 40-acre, 85-unit housing development.

*This newsletter is provided solely for informational purposes and presents only highly condensed summaries relating to the topics presented. Therefore, it should not be relied upon as a complete record for purposes of regulatory compliance, nor is it intended to furnish advice adequate to any particular circumstances. For additional information on any of the topics in this newsletter, please contact the author, or Allan Duhm, (863) 646-1402, or e-mail us.*

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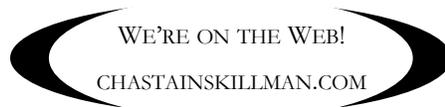
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