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*Proudly serving
electric utility,
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Storm Restoration and P&D

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This fall's hurricanes certainly won't be quickly forgotten, with a record four storms hitting the Southeast. Many of our clients worked countless hours putting their electric systems back together after the devastation of one or more of the storms.

Patterson & Dewar personnel were able to provide assistance to our clients who called on us for help, and we are very proud of the fine job they did. Our clients were also appreciative of the good work these folks provided. With the devastating effects on the electric systems and their associated costs, P&D was proud to be able to offer our clients staking services and other engineering assistance at our normal hourly rate, not charging premium rates for the overtime and the long hours.

Keith Womack joined P&D in late

August and was quickly thrust into long hours in helping some of our clients in their storm restoration efforts. Keith had spent seventeen years working for Wiregrass Electric Cooperative in Ashford, Alabama as a journeyman lineman and foreman. With that background, he was well suited to help direct crews in construction and salvage. Keith will be working with P&D as a staking technician and has been training under the guidance of David Winstead. David was also putting in a lot of hours helping Covington and Southern Pine Electric Cooperatives recover from storm damage while Ken Ball aided in the storm repair work for Clarke-Washington Electric Cooperative.

Thanks, guys, for all of your hard work. We here at P&D appreciate your efforts as do our clients!

Transmission Line Routing Studies

By Jerry G. Crawford, P.E.

In the past, transmission line route studies utilized USGS topographical maps and many assumptions to determine a ball-park cost for the project. If a detailed study of multiple routes was required, considerable amounts of surveying and/or aerial photos of

the site would be required to develop possible routes and profiles to complete preliminary line designs. When you completed the study and determined the final preferred route, the surveying on alternate routes was no longer needed, resulting in wasted surveying cost.

In the last few years, data from USGS topographical surveys has been made available in electronic formats. With the appropriate software, the information can be imported into computer line design programs such as PLS-CADD. Once the data is in PLS-CADD, multiple routes

can be developed. Structures can be spotted on the proposed centerlines so that detailed cost estimates can be completed on each possible route to determine the most economical route for the proposed line.

This approach provides a

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PDMap/GIS Developments

MEET THE NEW BENCHMARK IN MAP VIEWING!

P&D is pleased to announce the release of our latest product, PDView. This viewing product gives our clients the ability to view their map documents directly with no data translation. This viewer can view .dwg, shapefiles, images, and layers from the ArcGIS geodatabase. We have even included many of the tools found in our core PDMapGIS software. Some of these

tools include:

- SQL query and quick find tools
- Network trace tools
- Open feature attribute table
- Red lining graphic tools
- GPS interface, moving map function
- Measure length and area tools
- Layer on/off control
- Change symbol and text size

- Built in reports
- Map tips toolbar
- Multiple layout and print capability

PDView gives our clients access to their map data whether mobile or in the office. Employees can view and analyze the mapping information system any-time. There are other viewers on the market, but until the release of PDView, you could not trace or do other complex tasks. If you are interested in hearing more about PDView or

would be interested in a web demonstration, please contact Brian Watson at (404) 245-7732. We are working hard to provide real solutions for our clients and believe that PDView is a solution that has been needed for a long time. Look for the next newsletter and we will continue to keep you posted of new developments in our GIS department.

Transmission Line Routing Studies cont'd

much more accurate cost estimate for the project with less up-front cost. With the preliminary design, a field review can be completed to determine if there are fatal flaws in the route early in the route selection process. The earlier in the route selection process that problem areas can be

determined, the less costly those issues will become.

Currently, USGS is making black and white aerial photos available for most of the United States. Recent color high-resolution satellite photographs are available for larger metropolitan areas. The intent of USGS is to

continue adding high-resolution photos areas until they are available for the entire United States. USGS's goal is that these photos will be current with no photos being more than three years old. This is a very aggressive goal and will require several years to reach; however, this is a very powerful tool for

transmission line and distribution line routing.

Patterson & Dewar Engineers can assist you in all your route selection needs as well as your line design, inspection, or engineered maintenance needs.

P&D People

As P&D has grown, so has our reach for the best people we can find. Hilton Mills came to us in 2003 from Durban, South Africa. In South Africa, Hilton worked for ESKOM, the nationwide public utility. He was head of protection technology and a registered Professional Engineer. He was responsible for over 200 substations for which he evaluated protection performance. This process included highlighting poorly performing protection schemes, engineering suitable solutions, over-

seeing the installation, and commissioning these recommendations. Investigations into various problems included co-generation, single wire earth return, micro-hydro schemes, and solar and wind generator schemes.

Hilton's duties at P&D include substation design and testing with an emphasis on grounding system design and testing. He is using Hood-Patterson & Dewar's Smart Ground Multimeter for field testing of grounding systems.

Hilton, his wife and two sons are happily settled in Gwinnett County and have quickly adapted to life in Georgia including driving on the other side of the road. Hilton says "although the traffic is frightening, we are enjoying traveling and seeing the diversity of our new country".

We at P&D are having fun translating some of Hilton's expressions including "rubbish bin" (trash can), "pavement" (sidewalk), "bond" (mortgage), and "hire a car" (car rental).

As P&D has grown, so has the number of people from other locals. P&D staff now includes two people from South Africa, one from Canada, one from India, and one from Romania

Emergency Restoration Plan

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On October 12, 2004 RUS issued a Final Rule requiring electric program distribution, generation and transmission borrowers to have in place an Emergency Restoration Plan. This ERP will detail how the utility will restore its system in the event of a system-wide outage resulting from a major natural or manmade disaster or other causes. While the development of an ERP is not entirely new to RUS borrowers, this ruling details more specifics that must be included in the plan and requires this document to be in place before future borrowings can occur.

This new directive from RUS has arisen since the United States electric power systems have been identified in the Presidential Decision Direction under Homeland Security as a critical infrastructure of the nation. Critical infrastructures are defined as systems and assets, whether physical or virtual that are so vital to the nation that the destruction of such systems would have a debilitating impact on security, national economic security, national public health or safety. This final rule recognizes that more emphasis on emergency preparedness and business continuity is essential to lives, security and economic well being as we operate in a post 9/11 world.

Some of the major parts required in this plan include:

- Vulnerability and risk assessment
- Key emergency contact information
- Chain of command and delegation of authority & responsibility

- Procedures and guidelines for recovery
- Certification and approvals
- Annual exercise of plan

The Vulnerability and Risk Assessment is a very key component of this plan that identifies the critical assets and facilities (both internal and external to the utility's system) and the threats to these assets and facilities. In performing this part of the plan an excellent opportunity exists to identify and evaluate preventative measures and procedures to reduce or mitigate the impacts of physical and cyber attacks.

In complying with this RUS ruling, utilities will develop procedures and guidelines for operating personnel, outline duties of employees, and consolidate key information that will aid in the restoration of services as safely, quickly, and efficiently as possible. Borrowers of RUS funds will have until July 12, 2005 to certify that they have performed a Vulnerability and Risk Assessment and until January 12, 2006 to certify that they have an ERP. If we at P&D can assist you in developing or enhancing your ERP, please contact one of our engineers.