



# THE Breaker Buzz

Providing Electrical Solutions Worldwide

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## Group CBS Announces Formation of Advanced Electrical & Motor Controls, Inc.

**NEW COMPANY COMBINES ASTRO CONTROLS, ADVANCED MOTOR CONTROLS**

By Staff

GROUP CBS, INC. has taken two of its strongest companies and combined the strengths of each to provide advanced solutions for the low-voltage electrical supply and power distribution market.

Leading the company as president is Randall "Randy" Roumillat, who has more than 30 years leading operational and IT departments, most recently CIO at Yahoo. Leading sales, marketing, and product development will be Vice President David Muir, with more than three decades of experience in electrical manufacturing and sales. Chris Comire will continue as a busi-

ness advisor, providing a wealth of industry knowledge and 30-plus years of experience. Leading our production and emergency order response team is mechanical engineer Mike Sweet. Our goal is to continue generating revolutionary solutions for your electrical maintenance needs.

Advanced Electrical & Motor Controls provides a wide array of manufactured products focusing on customer needs and quality. The expertise of Advanced Motor Controls and Astro Controls will provide you with these solutions and more, specializing in low-voltage electrical equipment.

Continued on page 3



### INSIDE THIS ISSUE

Page 2  
Giving Thanks and Moving Forward

Page 4  
PD Alert Adds Layer of Safety to Remote Racking, Switching

Page 5  
Group CBS Supports Fukushima FLEX Emergency Power Initiative

Page 6  
CBS Adds Waterjet Tool  
Small Idea, Big Payoff

Page 7  
RMS Digitrip II vs. III Comparison

Page 8  
How Do Vacuum Interrupters Work?

Page 10  
Electrical Commissioning: Set Yourself Up For Success

Page 12  
Meet GCBS Attorney Tiffany Hamil  
CBS Nuclear Gets a Good Grade From NUPIC

Page 13  
CBS&R Expands to Meet Demands

Page 14  
Back Buzz

Page 16  
Group CBS Affiliates  
Trade Show Calendar

**THE VIEW FROM FLIGHT LEVEL 410***By Finley Ledbetter, CEO, Group CBS*

# Giving Thanks and Moving Forward

DURING THE HOLIDAYS it is time to reflect on the year past and future.

At Group CBS, we have been blessed with another year of growth; in fact, our best ever. Every business unit but one is up in either gross sales, net profit, or both. The combination of strong performance and our ongoing expansion strategy has created synergies that continue to benefit all.

In 2015, we solidified our presence in the Northeast with the acquisition of Electric Controls and with CBS Northeast's subsequent growth and expanded market share. We strengthened our position in the Southeast by opening a new operation in Louisiana, CBS Southeast. And we expect that the recent merger of Astro Controls and Advanced Motor Controls into Advanced Electrical & Motor Controls will power that business unit into new and better things. Finally, CBS ArcSafe, Western Electrical Services, Vacuum Interrupters, CBS Northeast, and the Circuit Breaker Store all set new records for total sales this year.

**Group CBS will continue growth through acquisition, expansion in 2016.**

In 2016, look for more expansion as we grow our service shop companies through both the acquisition of a major service company and the launch of a service shop start-up company.

Our people have gained experience and we are now operating in that sweet spot where we have few employees in the new retirement zone that we found ourselves in 10 years ago.



We have gotten smarter with nearly 20 new engineers added to the group, and we've reduced the average age of our mechanical and shop technicians by nearly 10 years.

Skunkworks continues to develop new products, too. Our new PowerVac TD replacement breaker and PD Alert partial discharge sensor system are just two new products the group can take to market in 2016, and we already have some strong new products under development for release in 2017.

The walls are going up in Dallas to house the Group's new High-Voltage Lab. This will be operated as a separate stand-alone test lab and be available for proof testing and ANSI testing for all the Group's needs. You can expect the new test facility to be functioning by March 2016. The new High-Voltage Lab will be part of GCBS' Farmers Branch, TX, R&D facility, giving us the tools to continue to challenge everything, and to develop any new solution we can dream up.

Enough about the past, and the future (and my Cowboys). Now let's all give thanks for what we have, and who we are. And let's all have a very happy new year. 

*Happy  
Holidays*  
*from Group CBS*

## Group CBS Announces Formation of Advanced Electrical & Motor Controls, Inc.

Continued from page 1

### Life Extension

We provide life extension services for discontinued circuit breakers and motor control center buckets. Our designs install into the original equipment without any modification, reducing downtime and extending the life of your equipment.

### UL-508A Industrial Control Panels

We manufacture UL-508A industrial control panels from customer-supplied drawings, or we can provide a custom solution. We have trained specialists who can discuss your specific industrial control panel needs.

**The company will combine the strengths of two previously existing Group CBS companies, Astro Controls, Inc. and Advanced Motor Controls.**

### AMC-QMqb Brand of Switches

Our QMqb brand of panelboard switches can replace switches from manufacturers including FPE, Challenger, Frank Adams, Sylvania, and Zinsco without any modification to the existing switchboard. Visit us on the web at [www.AdvancedMotorControls.com](http://www.AdvancedMotorControls.com) for more information.

### Quality and Testing

Our in-house technicians are specifically trained to test as well as recondition our products to the highest standards in the industry. We are an ISO 9001:2008-certified company; US3648. All test equipment is calibrated to ANSI/NCSL 7540-1 with full NIST traceability compliance. We fully test, warranty, and insure all of our products to meet industry safety standards in addition to quality specifications. Our sales team is ready to meet the challenge 24/7 for emergency service. We are a quick-ship solutions provider for disaster and emergency response. 

# PD Alert Adds Layer of Safety to Remote Racking, Switching

## NEW PARTIAL DISCHARGE SENSOR DEBUTS

By Staff

CBS ARCSAFE IS pleased to announce the release of its PD Alert partial discharge sensor option to its Remote Racking System (RRS) line during the Power-Gen International conference in Las Vegas this month.

**PD Alert can be used with any of CBS ArcSafe's remote racking systems, or as a stand-alone partial discharge sensor for monitoring critical electrical distribution equipment.**

CBS ArcSafe's optional PD Alert provides an additional layer of safety for technicians tasked with racking or removing circuit breakers and motor control centers. In the event of a breakdown in line-to-line or line-to-ground insulation, the PD Alert radio frequency (RF) non-contact sensor issues a visual strobe alarm or digital alarm via email or SMS text message. The PD Alert can be used with any of CBS ArcSafe's remote racking systems, including the RRS-1 for rotary, jackscrew type breakers; the lightweight RRS-1LT made from aluminum extrusion; the programmable dual-mode RRS-4; and the RRS-2 and RRS-2BE for remotely racking extractor type circuit breakers or motor controls, respectively. PD Alert can also be used as a stand-alone partial discharge sensor for monitoring critical electrical distribution equipment.

Advanced signal processing and field configurable setup allows the operator to set do-not-exceed thresholds for partial discharge values, or to issue an alert if partial discharge values indicate a condition that could be dangerous to technicians.

While CBS ArcSafe's remote racking and remote switching systems allow technicians to operate potentially dangerous electrical equipment from up to 300 feet away thanks to wireless control and video links – outside of the arc-flash danger zone – even with the additional layer of protection afforded by PD Alert, technicians should always follow standard safety procedures set out in NFPA 70E and other industry standards.

All CBS ArcSafe products are manufactured in the U.S. at our manufacturing facility in Denton, Texas. For more information, visit [CBSArcSafe.com](http://CBSArcSafe.com) or call 877-4-SAFETY. 



# Group CBS Supports Fukushima FLEX Emergency Power Initiative

## EFFORT AIMS TO MAKE FACILITIES SAFER

By Paul Grein, Sales/Electrical Engineer, Circuit Breaker Sales Co., Inc.

CIRCUIT BREAKER SALES Co., Inc. (CBS) has partnered with CBS Nuclear Services, Inc., to provide Fukushima FLEX Strategy-compliant temporary power units (TPUs), portable distribution panels, and related products — turn-key portable power solutions — for the nuclear power industry.

FLEX is a strategy developed by the nuclear energy industry to implement the Nuclear Regulatory Commission's Fukushima task force recommendations quickly and effectively. FLEX addresses the main safety challenges at Fukushima — the loss of electrical power and cooling capability resulting from a severe natural disaster — to make U.S. facilities even safer.

The strategy is "flexible" in that it relies on portable and temporary equipment to protect against the most unlikely events, well beyond the plant's original design basis.

FLEX is site-specific, taking into account design and geographic differences between plants, as well as the most likely risks that could occur at each nuclear energy facility. A

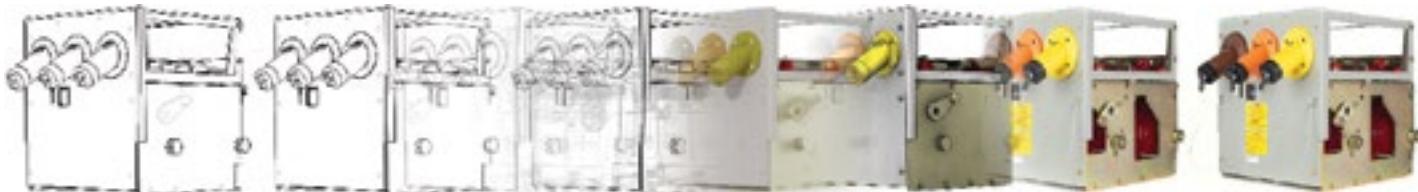
flexible approach ensures that each plant focuses on planning for extreme events that are more likely to occur locally. For example, the risk of floods is more likely in the Midwest and Northeast, while earthquakes are more common on the West Coast.

Each nuclear site assessed its risks and developed a plan to provide emergency power to their critical loads.

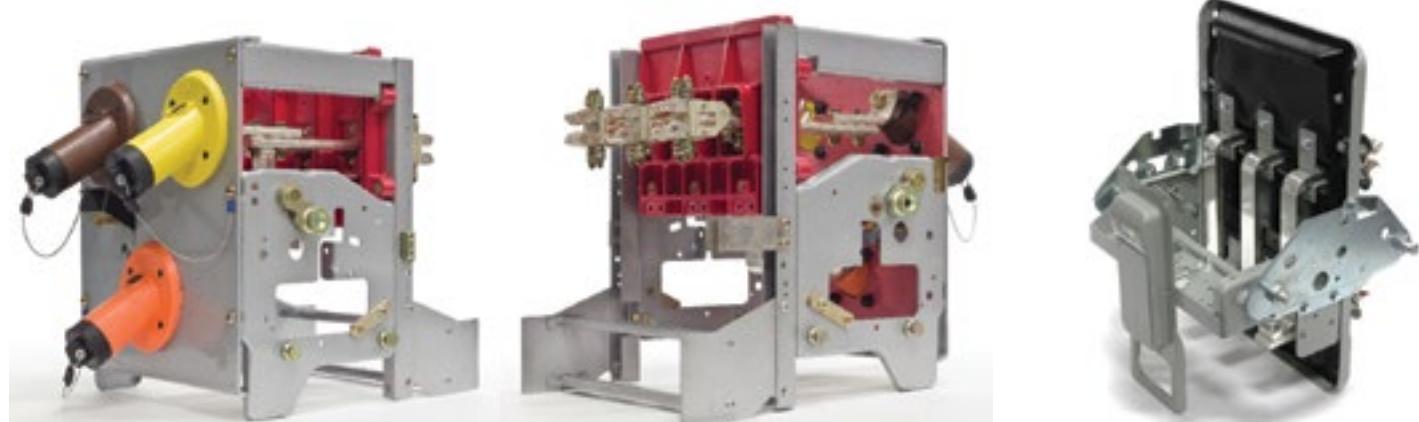
CBS designs, develops, and tests portable power solutions in accordance with customer specifications drafted to FLEX strategy requirements. The design process consists of:

- Working with our customers to draft and approve product design specifications in accordance with IEEE/ANSI and applicable standards and customer requirements.
- Designing the FLEX portable power products digitally through an iterative process via 3D design software until final approval is reached.

*Continued on page 11*



DS-206-TPU, draft to design



K-600-TPU

AK-25-TPU

# Waterjet Cutting Machine Expands CBS's Manufacturing Capabilities

## WILL EXPAND MANUFACTURING CAPABILITIES

By Paul Grein, Sales/Electrical Engineer, Circuit Breaker Sales Co., Inc.

**IN SUPPORT OF** our continuous efforts to improve quality and increase our capabilities, CBS has recently acquired a Maxiem CNC Waterjet Cutting Machine. The waterjet has augmented CBS's manufacturing capabilities, increased efficiency, and lowered production costs. One of the primary advantages of waterjet versus similar CNC technologies, such as plasma or laser cutting, is its versatility. Not only can it cut ferrous metals, it can also cut the non-ferrous materials commonly used in switchgear, including aluminum and insulative materials such as GPO3 and composites.

Following training and commissioning, our production and engineering staff immediately put the versatile machine to work. The Maxiem CNC is having many positive effects, including:

- Enhancing our ability to produce parts, repeatedly, accurately, and efficiently;
- Reducing our reliance on suppliers and outside machine shops;



**Maxiem CNC Waterjet Cutting Machine**

- Reducing cost and lead times on parts and their associated jobs and projects;
- Adding to our prototyping capabilities; and
- Supporting our CNC design and manufacturing processes.

The ability to store and load cutting paths reduces our need to maintain a stock of replacement parts that can now be "printed" as needed.

CBS was recently awarded a contract to produce polycarbonate cover assemblies for a large OEM. The parts were produced entirely with the waterjet for a fraction of the cost and time that would come with manual machining.

If you have any projects or parts that are well suited to our new capability, contact your CBS sales rep for more information and quotations. ↗

# Small Idea, Big Payoff

## A FRIENDLY WARNING FOR PRODUCT USERS

By Michael Smolen, Inside Sales & Marketing, Circuit Breaker Sales NE, Inc.

**DID YOU EVER** notice how in big business it's often the smallest ideas that pay instant dividends? I've no doubt that across the ever-expanding world of Group CBS, were we to add up the incidents of clients tinkering with equipment we've repaired, tested, and recertified for use, we'd be facing astounding amounts of lost dollars and lost time.

It was another such "warranty claim" incident here at CBSNE that popped an idea into the head of our tireless Production Planner Ashley Peck: How about a hang tag warning our clients of the risks involved in tampering with their newly delivered device?

With unanimous agreement here both upstairs and down, I spent a whole 20 minutes with Photoshop and the rest is history. Less than a month into use, we've already received our first phone call from a client requesting confirmation of a breaker's settings and permission to change them. In short, it's a small idea with all pros and no cons, and we thought we'd share it with our colleagues. ↗



# RMS' Digitrip II vs. Digitrip III: How Do They Compare?

By Derreck Barnhill, President, Solid State Exchange & Repair Co.



**THE RMS DIGITRIP III** became the standard trip unit on DS and SPB low-voltage AC power circuit breakers in August 1994. Prior to that, the RMS Digitrip II had been installed on new breakers since 1985. The Amtector, the standard trip unit on breakers introduced in 1969, and the Pow-R Digitrip, introduced in 1981, are both peak sensing devices.

How does the Digitrip III compare to its predecessor? Let's take a look at some details.

The RMS Digitrip II series consists of the 500, 600, 700, and 800 models with all combinations of functions. The RMS Digitrip III consists of the 510, 610, 810, and 910. Note that the Digitrip 700 was not superseded in the Digitrip III line of models.

The Digitrip II units are all labeled as being made by Westinghouse. The Digitrip III units are labeled by manufacturers other than Westinghouse, including Cutler-Hammer and Eaton. The Digitrip 810 may be labeled as Square-D.

The 510 is the basic trip unit, and it comes with all combinations of functions: LI, LS, LSI, LSG, LIG, and LSIG. The 610 has the same features as the 510, but it also has metering and trip function display. The 810 has the same features as the 610, but also with IMPACC communication features. The 910 also has voltage metering capabilities.

Here is how the features of the Digitrip III compare with previous trip units:

- Digitrip III series units can be physically installed in place of a Digitrip II unit. Both series use existing wiring diagrams for DS and SPB breakers. The rating plugs, however, are not interchangeable; Digitrip III plugs only fit Digitrip III units and Digitrip II plug only fit Digitrip II units.
- The Digitrip 510 has a thermal memory with the capacity to remember that its feeder circuit has seen an overload, and to account for the heating that has occurred when making the next trip decision (similar to a bimetal). The Digitrip 500 does not have a thermal memory. The 600/700/800 and 610/810 units are powered by the ATR when AC power is present, and loss of control power will not erase thermal memory on the Digitrip III units. The long-time thermal memory can be defeated by the jumpers located behind the rating plug.

- Digitrip III units have a built-in over-temperature feature. If the temperature inside the trip unit exceeds 95° C (203° F), the breaker will automatically be tripped, the long-time LED will light, and the message "TEMP" will be displayed on 610/810 units.
- The 610 and 810 LED display has been enlarged to approximately twice the size of the older units. The characters are about one half-inch high.
- The TRIP RESET button is red on the DT III units, not black as before.
- The metering accuracy on the 610/810 units has been improved. Current readings are ±2% of primary sensor ratings. Power Factor readings are ±2% of the reading (this applies over the range of .5 lagging to .5 leading and to balanced three-phase systems only). Power readings (MW) are ±4% of primary sensor rating x maximum system voltage (600 VAC). Energy readings (MWH) are ±5% of primary sensor rating times maximum system voltage (600 VAC) times time.
- The DT III rating plugs are suitable for both 50 or 60 Hz systems. DT II rating plugs were required to be rated for either 50 Hz or 60 Hz systems.

## Rating Plug Catalog Numbers:

	<b>Digitrip III</b>	<b>Digitrip II</b>
DS Rating Plug	RP6DxxAyyy	PDzDxxAyyy
SPB Rating Plug	RP6SxxAyyy	PDzSxxAyyy
Where: xx is the breaker frame rating yyy is the continuous current rating z is either 5 or 6 for 50 Hz or 60 Hz		

## Digitrip Catalog Numbers:

<b>Digitrip III</b>	<b>Digitrip II</b>
1 2 3 4	1 2 4 3
S ----- ( )	T -----
Where: 1 is the Digitrip model (5, 6, 7, 8) 2 is a number that represents the trip function: 1: LI                  4: LIG 2: LSI                5: LSG 3: LS                 6: LSIG 3 is the letters that represent the trip functions: L, S, I, G 4 is a manufacturing code.	

Most of this information came from a Westinghouse Product Release Statement dated Aug. 12, 1994 by Dan Dziewulski, and from FRED document # 510810.

# How Do Vacuum Interrupters Work?

**LEARN HOW VACUUM INTERRUPTERS WERE ORIGINALLY DESIGNED, AND HOW MATERIAL AND MANUFACTURING IMPROVEMENTS HAVE MADE THESE DEVICES MORE COMPACT AND ROBUST.**

By John Toney, Design Engineer, Vacuum Interrupters, Inc.

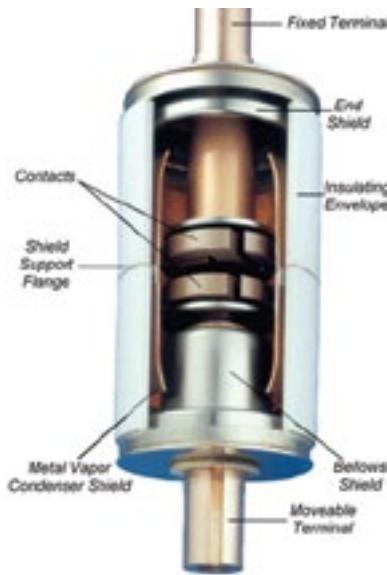
THE SIMPLEST WAY to describe a vacuum interrupter (VI) is as a device for interrupting or stopping the flow of AC current by separating a pair of contacts enclosed within a high-vacuum, hermetically sealed, electrically insulating container. Typically, VIs are applied at voltages of 2 kV to 38 kV.

A three-phase vacuum breaker incorporates three vacuum interrupters, one for each phase. The circuit breaker mechanism supports and connects the VIs, providing the means for opening and closing the contacts of the VI and acting as a component easily removed from the switchgear in which it is installed. The VI, the heart of the breaker, provides the break in continuity when the breaker is open, a solid, high-conductivity connection when the breaker is closed, and a means of transitioning between those two states.

An interrupter is able to go from being a very good conductor of electricity while closed, to carrying tens of thousands of amperes via an arc while being opened, to interrupting the flow of arc current, to becoming essentially an insulator which can withstand the full system voltage, as well as voltages imposed from nearby lightning strikes.

## VI Construction

The figure in the next column shows fixed and moveable terminals connected to a pair of contacts inside a vacuum-tight enclosure made of an insulating envelope brazed to endcaps, which are also vacuum-brazed to the terminals.



**A cutaway view of a generic vacuum interrupter**

In the case of the moveable terminal, a thin flexible corrugated metal tube is brazed between the endplate and the moveable terminal. This tube, called a bellows, allows the vertical motion of the moveable terminal so the contacts can be opened and closed. Typically, the fixed terminal is fastened to a copper bus within the breaker, and the moveable terminal is fastened to a spring or solenoid actuator within the breaker mechanism.

Electrical connection between a breaker bus and the moveable terminal happens via a sliding contact or flexible connector. The terminals are sized so that they won't overheat while carrying rated load current.

During an opening operation of the VI, an arc is drawn resulting in the spraying of metal vapor and metal drop-

lets. The purpose of the shields within the VI is to protect delicate components and preserve the insulating characteristics of the insulating envelope so that the VI will withstand the voltages present when it's open.

## Arc Physics

All circuit breakers draw an arc between contact structures when they open. The arc is the flow of ions across a gap between the contacts when there is a voltage difference between them. In general, a breaker clears a fault when the arc current decreases to zero before reversing direction, known as current zero.

The vacuum arc is unique in that its ions are provided solely from metal vapor from its vaporized contact material. A high vacuum is essential because it acts as an excellent electrical insulator, and lets the vacuum interrupter clear the fault rapidly at current zero due to relatively low arc energy and the rapid deionization of metal vapor plasma.

The arc starts as the VI contacts part. The full current flow through the last touching point between the parting contacts causes explosive vaporization of that bridge and the ionization of the resultant metal vapor.

At arc current levels below 10,000 Amperes, the arc is diffuse; the sustaining metal vapor is emitted by tiny, fast-moving, intensely hot spots, called cathode spots, on the cathode (negative voltage) contact. In this arcing mode, the erosion of the contacts is evenly

distributed. At current levels below 10,000 Amperes, the contact can be a simple button/butt contact.

As current levels increase above 10,000 Amperes, the magnetic fields from current flow between the contacts constrict the arc so that the arc root stabilizes on one location on the anode (positive) contact and the cathode. This concentrated heating in one location uses only a small part of the contact surface area and acts to exceed the conditions for successful interruption.

To better distribute the arc energy over the whole surface of each contact, a magnetic field is generated by current flows within the contact. The most popular and economical design for spreading out the arc is the radial, or transverse magnetic field (TMF), design. In this design the magnetic field causes the concentrated arc to move over the face of the whole contact.

A third type of contact design, axial magnetic field (AMF), directs current flow through the contact structure so that a magnetic field is generated that traps the arc plasma between the contacts. This keeps the arc diffuse and spreads the arc over the whole contact.

### Interrupting the Vacuum Arc

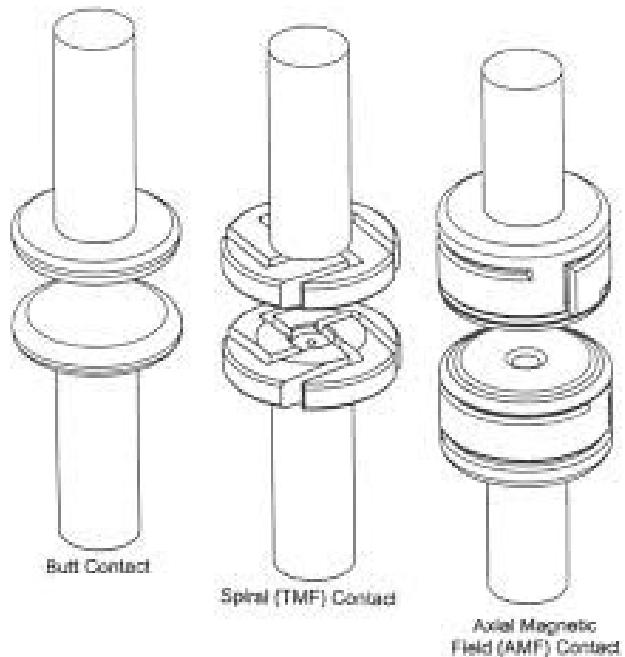
The current flowing across a pair of arcing contacts is at the level of available fault current; the voltage across the contact pair is, at most, a few hundred volts and does not significantly restrict the current flow.

The VI is designed only for interrupting nominally sinusoidal AC currents. The only time it can interrupt the current is at a current zero, the instant at which the current changes direction.

The only charge carriers conducting the current in the arc are ionized metal vapor atoms from the contact surfaces. Typically, the arc exists from the time the contacts part until they are near full gap and a current zero is crossed — generally three to sixteen milliseconds, depending on opening point, opening speed, contact material, and other factors.

The metal vapor required to carry the instantaneous current of the arc is boiled off the surfaces of the contact as it is needed. As the current declines toward a current zero, the vapor boiled off the surface of the contact declines and the contact surface freezes. When the final cathode spot disappears and the remaining metal vapor has condensed on the metal vapor shield and contacts, the voltage withstand of the gap between the contacts increases to near its original value in a matter of microseconds.

At this point, the VI has interrupted the fault current and will withstand the recovery voltage transient that immediately follows. ↩



Three examples of contact designs



Two models rated At 3000 A Load, 15 kV, 40 kA interruption

# Electrical Commissioning: Set Yourself Up for Success

A PRIORITIZED LIST OF REQUIREMENTS WILL HELP YOU STAY ON TRACK AND LEAD TO A SUCCESSFUL PROJECT.

By Dan Hook, Executive Vice President-Business Development, Western Electrical Services and Tim Conley, Senior Technical Advisor, Western Electrical Services

ELECTRICAL COMMISSIONING IS a complex process that verifies and documents an electrical system to ensure it performs as intended and meets applicable standards and manufacturers' tolerances. Electrical commissioning should identify and document the correction of discrepancies so that when the system is turned over to the owner, he or she knows it's reliable and has been installed in accordance with design specifications.

A successful electrical commissioning project also provides the necessary baseline data for the system. This means future maintenance tests can be compared to the data and accurately track the health of the electrical system.

Typically, commissioning activities begin prior to acceptance testing — ideally very early in the overall project schedule. Commissioning early in a project can identify problems and allow for their correction.

## The Documentation Process

While gathering all required design documentation prior to formulating a commissioning plan might sound simple, it can come with challenges. Change orders can happen in the design phase as well as construction phase of a project, resulting in revisions to drawings and specifications. Also, there might be more than one entity responsible for the documentation you need to develop a commissioning plan.

What's needed to generate a comprehensive commissioning plan?

## Electrical Plans

- One-line diagrams or a view of the electrical distribution system to identify the individual components of the system that will undergo electrical acceptance testing in the field;
- Three-line diagrams, which let the test team determine if the wiring supports the anticipated functionality;
- Schematics, control device truth tables, and connection diagrams — which show physical location of connections, electrical connection points, and appropriate states of contacts and other control devices — can be essential in developing the point-to-point continuity test requirements.

## Electrical Specifications

- Design criteria, which are crucial in allowing the commissioning team to fully understand how the system is required to perform;
- Factory test requirements, often required to be performed and witnessed by a designated representative;
- Field electrical acceptance testing requirements, which should be clearly delineated — in some cases there are optional tests or alternate test methods required.

## Manufacturer's Documentation

This includes specific installation instructions and startup/commissioning guidelines.

## Power System Studies

- A short-circuit study is required for labeling of switchgear and must include available fault current information, as well as design requirements for switchgear ratings verified by the commissioning team;
- Coordination study with finalized device setting sheets and set point files;
- Arc-flash hazard analysis.

## Creating a Commissioning Plan

Finalize the components of the commissioning plan early — there will be requirements prior to construction and independent testing. For example, the companies contracted and the personnel themselves may be required by the specifications to submit qualifications for approval. In some cases, an installation inspection must be performed before the next step in the construction process.

A crucial step is energization. Pre-energization (electrical acceptance testing) testing typically includes: component testing, continuity testing on interconnections, and functional testing on controls and interlocks.

The first energization event for newly installed electrical equipment should address safety and expected system parameters. The commissioning team may be directly responsible for methods of procedures and job hazard analyses, but at the very least the team must be involved.

Continued from page 10

The commissioning plan may also include job hazard analysis for specific testing evolutions. As the complexity of testing increases toward energization and post-energization testing, a detailed method of procedure should be developed. System parameter measurements should also be done during the energization procedure.

Post-energization system functional testing comes near the end of the process. By then, all component testing has been completed, interconnection continuity has been verified, and controls schemes have been previously verified. The system has been energized and all indications verified so that testing more closely resembling real-life situations can be performed.

Maintain a sequential discrepancy log during the entire commissioning process including resolution to each

discrepancy. This log can serve many purposes near the end of the project but can be nearly impossible to try to re-create after the time of the project has largely passed.

Also, use industry-recognized standards for acceptance testing by an independent, third-party entity that can function as an unbiased testing authority, professionally independent of the manufacturers, suppliers, and installers of equipment or systems being evaluated.

The complexity of electrical systems and how they interrelate with other systems is growing. A sound electrical commissioning process should be part of a strategy to combat issues during construction and testing, with the ultimate goal of turning over a reliable system that will operate as designed. ↗

## Group CBS Supports Fukushima FLEX Emergency Power Initiative

Continued from page 5

- One or more prototypes are manufactured and tested in accordance with the product design specifications. In addition to the standard IEEE/ANSI design requirements typical of power products, environmental, and seismic testing is often required.
- Once the prototype passes design testing, production units conforming to the approved design and identical to the prototype are completed, tested, and shipped to the customer.

The FLEX-compliant temporary power units and portable distribution panels are a few of the latest examples of custom power product solutions CBS has provided to industry for over 30 years. While we hope that the FLEX products are never needed, they stand ready to support future casualty recovery efforts for our nuclear power industry. ↗

**FLEX Portable Distribution Panel**



## Meet GCBS Attorney Tiffany Hamil

By Staff



**Tiffany Hamil**

**TIFFANY HAMIL HAS** been a familiar sight around Group CBS for several years, but now you can look forward to seeing a lot more of her. Hamil, who has been looking after GCBS's legal mat-

ters since 2010, is now officially the company's in-house counsel.

"In the past I've been like a regular attorney, with Group CBS as one of my clients," says Hamil. "Now I'll be more integrated with the daily operations of the Group and associated legal requirements. Working for Group CBS is always interesting. They're always growing."

Hamil's office employs two other fulltime lawyers, but Hamil will be handling matters for GCBS on her own, including reviewing legal documents and working on mergers, acquisitions and transactional

matters. Hamil is also working on obtaining tax-treaty benefits for GCBS workers in other countries.

Hamil has a Bachelor of Arts degree from Southern Methodist University and a law degree from Texas Wesleyan School of Law (now known as Texas A&M University School of Law), where she's an adjunct professor. She also has a Master of Laws degree in Taxation from the University of Florida.

She serves on the Tax Council for the Tax Section of the Dallas Bar Association, and is the Dallas Coordinator for the Tax Court Pro

Bono Program of the state's bar association.

Away from the office, she loves to watch college football (with her loyalties split between Florida and SMU), and is an avid volunteer with AFS-USA, nonprofit that offers international exchange programs. She has hosted five foreign exchange students, including her current student, Leo.

"Everyone at GCBS is great with the kids I host," she says.

If you have any questions for Ms. Hamil, feel free to contact her at: [thamil@GroupCBS.com](mailto:thamil@GroupCBS.com). 

## CBS Nuclear Gets a Good Grade From NUPIC

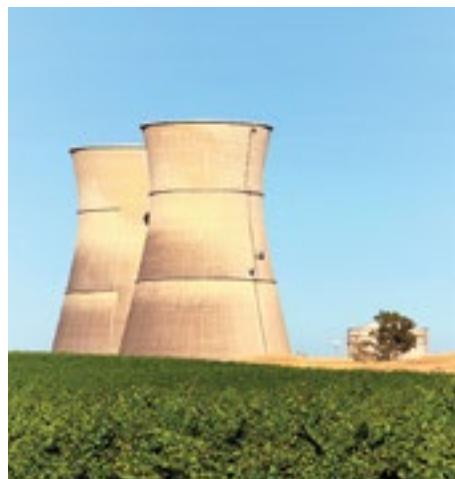
By Curt Culver, Quality Assurance Manager, CBS Nuclear Services Inc.

CBS NUCLEAR SERVICES, INC. recently passed an industry audit with flying colors. Between Sept. 21-24, the Nuclear Procurement Issues Committee (NUPIC) performed an audit of CBS Nuclear Services. A six-person team composed of both quality



personnel and technical specialists audited our safety-related quality program over that four-day period. The audit results were nearly perfect with no findings or observations.

The audit was performed using Revision 18 of the NUPIC Audit Checklist. All applicable checklist sections, Appendix B to 10 CFR 50, and 10 CFR 21 requirements were addressed. The auditors reviewed the requirements of Revision 16 of the CBS Nuclear Services Quality Assurance Manual and supporting implementing procedures.



This audit is performed every 30 months. NUPIC's audits are done for suppliers with five or more customers who are Nuclear Regulatory Commission-licensed or are international nuclear plant operators. NUPIC members include all domestic U.S. nuclear utilities, along with several international members.

It takes the entire shop's attention to detail and continuous effort to perform a feat as rare as having no findings during a NUPIC audit.

The results of the audit mean that CBS Nuclear Services, Inc. will maintain its status as an approved supplier for nuclear power plants. CBS Nuclear Services, Inc. is one of the only breaker shops in the United States to be certified in this manner by NUPIC. 

# Circuit Breaker Sales & Repair Expands to Meet Demands

## NEW HIRES ACCOMPANY GULF COAST EXPANSION

By Andrew Collins, Business & Inside Sales Support, Circuit Breaker Sales & Repair, Inc.

**CIRCUIT BREAKER SALES & REPAIR** is proud to announce the opening of CBS Southeast. CBS Southeast is the newest member of the Group CBS line of companies and is the sister company of Houston's Circuit Breaker Sales and Repair.

Centrally located in Gonzales, LA, CBS Southeast is a full-service breaker shop servicing the Louisiana Gulf Coast. Their pivot-point location will primarily serve areas from Lafayette to New Orleans and along the southeast coastal region.

Meet the staff of CBS Southeast and Circuit Breaker Sales & Repair:



**Butch Powell**

**Butch Powell, Business Manager/  
Development**

A Louisiana native, Butch Powell will be serving as business manager and working in business development sales for CBS Southeast in Gonzales. He has climbed the ranks within the industrial electrical industry, bringing 20 years of experience from within the Southeast corridor of Louisiana. Butch will focus primarily on the areas east of Lafayette and the surrounding Louisiana Gulf Coast.



**Sean Hebert**

**Sean Hebert, Outside Sales**

Sean joins the CBS&R as outside sales support after two years at Enterprise Products. Overall, Sean has spent 11 years in the commercial and industrial electrical industries, including five years spent as an NCCER certified instrument technician in plants and refineries. His sales territory will include: Houston, Freeport, and Chocolate Bayou.



**Tim Serpico**

**Tim Serpico, Senior Breaker Tech**

Circuit Breaker Sales and Repair welcomes Tim Serpico to its staff. Tim joins CBS&R with more than a decade's worth of experience within the electrical services industry. Tim has spent much of his professional career in Colorado working for notable companies, including his most recent employer, CH2M Hill at MillerCoors Brewery Co. Now relocated to Houston, Tim will serve as a senior breaker technician for CBS&R.



**Tre Ponce**

**Tre Ponce, Team Leader**

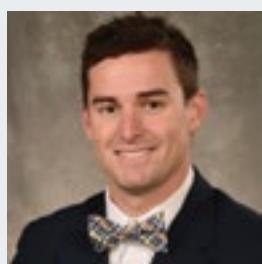
Tre Ponce has relocated from Houston's CBS&R to CBS Southeast in Gonzales to help lead the new Gulf Coast operation. A valuable breaker tech at CBS&R for nearly ten years, Tre will be serving as team leader for CBS Southeast. Tre will assist in the coordination of shop services and oversee the crew of breaker technicians.



**Eric Fontenot**

**Eric Fontenot, Business Development**

Eric joins CBS&R after nearly two decades within the electrical services industry. During his time as a breaker technician and a field services specialist, Eric cultivated the knowledge that would eventually land him sales roles for reputable companies. For CBS&R, Eric will focus primarily on the Central and West Texas corridors.



**Andy Collins**

**Andy Collins, Business/Inside Sales  
Support**

A graduate of Stephen F. Austin State University, Andy joined the CBS&R staff in June 2015 and serves as inside business support for the Houston-based operation. Upon employment with CBS&R, Andy temporarily relocated to Gonzales to help launch Circuit Breaker Sales Southeast in Gonzales. His role in Houston is business/inside sales support and marketing.

# Back Buzz

Looking Back, Moving Forward

*Christmas Edition!*

**January/February 2003**

## Prize Winners From the 2002 Christmas Party

Yes, the holiday season is over, but Circuit Breaker Sales wished to share a few of our party pictures with the group. CBS celebrated Christmas on December 24th with a catered meal. Family and friends of the employees were invited to attend.

Every year during the Christmas luncheon, the CBS employees are invited to participate in games sponsored by Finley with both cash and gift prizes. Latrisha Hughes, shipping manager, was the lucky winner of over \$300 cash.

In addition to the games, the Shop Employee of the Year is also recognized and presented with a gift. This year's recognition went to Brad Williams. As a token of appreciation Brad received an Armalite AR-15 carbine.



**Brad Williams**



**Latrisha Hughes**

**January/February 2004**

## Celebrating Christmas 2003

In keeping with tradition, Circuit Breaker Sales held their annual Christmas party on Christmas Eve at the facility in Gainesville with a catered meal accompanied with gifts and games. Family and friends of the employees were invited to attend the celebration.

Every year during the Christmas luncheon, the CBS employees are invited to participate in games sponsored by Finley with both cash and gift prizes. The big winner of Finley's money game was "Red" Crisp, who won over \$300 cash.

In addition to the games during the Christmas party, the Shop Employee of the Year is also recognized and presented with a gift. This year's recognition went to Glenn Hellinger. As a token of appreciation Glenn received a Winchester 30-30 rifle.



**Glenn Hellinger**

## January/February 2007

### Christmas Lunch 2006



**Tim Brewer**

Keeping the tradition alive, Circuit Breaker Sales held their annual Christmas Lunch on 12/22/06 with a catered meal from Rudy's Bar-B-Q. As always, family and friends were invited to attend the feast. Every year the employees are invited to join in games sponsored by Finley that include cash and gift prizes.

At the 2006 Circuit Breaker Sales, Inc. Christmas lunch Tim Brewer was awarded employee of the year and was given a plaque for his accomplishments. Tim is the Parts Manager/Inside Sales here at Circuit Breaker Sales, Inc. Tim also has a link to some of the parts that were shipped from the CB Sales Parts Department. Tim has been with the company for 9 years and has been Parts Manager for 5 years. Great job Tim!!



## November 2012

### Giving Thanks, Sizing Up and Looking Ahead

By Finley Ledbetter, CEO, Group CBS

With the holiday season upon us, it's time to give my thanks to everyone for all their hard work and for another great year for Group CBS. Let's work toward another one. (Every year I say that, "Just one more.") Keep investing in your people and capabilities. That is what Group CBS is all about. Surround yourself with great people and give them the tools they need; then watch them slowly go their own way, and you will also find the benefit.

**Advanced Motor Controls**
**AdvancedMotorControls.com**

Advanced Motor Controls is a certified UL508A industrial control panel builder, designing and manufacturing custom control panels. Also provides new and professionally remanufactured MCC buckets, motor control centers, and component parts.

**Irving, Texas – Ph: 972-579-1460**

**Astro Controls, Inc.**
**AstroControls.com**

Sales and service for all types of industrial molded case circuit breakers, insulated case circuit breakers, and motor controls.

**Irving, Texas – Ph: 800-289-2757**

**CBS ArcSafe, Inc.**
**CBSArcSafe.com**

Remote racking systems, remote switch actuators, and handheld motorized racking tools for low- and medium-voltage switchgear.

**Denton, Texas – Ph: 877-4-SAFETY**

**CBS Nuclear Services, Inc.**
**CBSNuclear.com**

Specializes in shop and on-site field servicing of Class 1E safety-related low- and medium-voltage switchgear and circuit breakers. Also services industrial and non-nuclear-related circuit breakers and related switchgear and substations.

**Matthews, N.C. – Ph: 704-882-1875**

**CBS Power Products, Inc.**
**CBSPowerProducts.com**

New alternative utility and industrial power products: transformers, switchgear, and other power apparatus.

**Gainesville, Texas – Ph: 940-665-4444**

**Circuit Breaker Analyzer, Inc.**
**CBAnalyzer.com**

Providing new circuit breaker testing methods that utilize vibration analysis combined with internet data transfer and sophisticated condition-based analysis to determine the condition of all types of circuit breakers.

**Farmers Branch, Texas – Ph: 972-290-0074**

**Circuit Breaker Sales Co., Inc.**
**CircuitBreaker.com**

World's largest inventory of low- and medium-voltage circuit breakers. Millions of parts in stock. Complete service, remanufacture, upgrade, and life-extension services. Match existing switchgear lineup. Also offers CBS MagVac, a line of magnetic latching medium-voltage breakers that eliminates moving parts with a magnetic latching linear actuator.

**Gainesville, Texas – Ph: 800-232-5809**

**Circuit Breaker Sales & Repair, Inc.**
**CBSalesAndRepair.com**

Servicing the Gulf Coast with shop or field service, repair, upgrade, or replacement of power system apparatus.

**La Porte, Texas – Ph: 281-479-4555**

## GROUP CBS AFFILIATES

**Circuit Breaker Sales & Service, Inc.**
**CBS-Florida.com**

One-stop service for circuit breakers, switchgear, transformers, protective relays, loadbreak switches, motor controls, unit substations, renewal parts, and repair, upgrade, life extension, and maintenance services.

**Lakeland, Fla. – Ph: 863-646-5099**

**Circuit Breaker Sales NE, Inc.**
**CircuitBreakerSalesNE.com**

A leader in providing power distribution products and services, specializing in life-extension services and offering an expansive inventory of new, surplus, and reconditioned circuit breakers, switchgear, motor controls, transformers, and other power apparatus.

**Seymour, Conn. – Ph: 203-888-7500**

**Circuit Breaker Sales Southeast, Inc.**
**CBSSoutheast.com**

CBS Southeast provides sales and repair, upgrade, reconditioning, and life extension services of utility-industrial circuit breakers, motor control, switchgear, substations, transformers, and other electrical equipment.

**Gonzales, La. – Ph: 225-673-2278**

**Circuit Breaker Store, Inc.**
**CBStore.com**

Your online source for all Group CBS products, a powerful solutions provider with a specialty vendor network that can supply factory new, surplus new, and reconditioned circuit breakers, electrical distribution, control equipment, parts, and remote racking equipment.

**Gainesville, Texas – Ph: 855-227-8673**

**Group CBS, Inc.**
**GroupCBS.com**

**Addison, Texas – 972-250-2500**

**Solid State Exchange & Repair Co.**
**SolidStateRepair.com**

Quality, reliable, on-time service and support for all brands and types of solid-state power electronics, including circuit breaker trip devices, protective relays, motor overload relays, and rating plugs.

**Denton, Texas – Ph: 877-TRIP-FIX**

**Transformer Sales Co.**
**CBSales.com/transformers/index.htm**

Offers a complete line of new, surplus, and reconditioned dry-type, cast-coil, and liquid-filled power transformers from 1000 to 5000 kVA with primary voltages from 2400 V to 34.5 kV.

**Gainesville, Texas – Ph: 940-665-4484**

**Vacuum Interrupters, Inc.**
**VacuumInterruptersInc.com**

Provides replacement vacuum interrupters (vacuum bottle interrupters) for virtually any manufacturer's medium-voltage circuit breaker or contactor. Offers the MAC-TS4 test set to determine the condition of vacuum interrupters in the shop or field.

**Farmers Branch, Texas – Ph: 214-442-5877**

**Western Electrical Services, Inc.**
**WesternElectricalServices.com**

Serving the Southwest with superior quality on-site electrical testing, maintenance, and repair services as well as rebuild, upgrade, and life extension services for switchgear, circuit breakers, and motor controls.

**Phoenix, Ariz. – Ph: 888-395-2021**

**Western Electrical Services, Inc.**
**WesternElectricalServices.com**

The only full-service electrical testing and maintenance company in the Intermountain region.

**Salt Lake City, Utah – Ph: 888-395-2021**

**Western Electrical Services, Inc.**
**WesternElectricalServices.com**

The Northwest leader in electrical testing, maintenance, and power switchgear services providing on-site electrical testing and maintenance, electrical engineering studies, and sales, repair, upgrade, and life extension services of circuit breakers, switchgear, motor controls, and transformers. Also custom manufacturing of engineered and reverse-engineered parts.

**Sumner, Wash. – Ph: 888-395-2021**

**Western Electrical Services, Inc.**
**WesternElectricalServices.com**

One-stop shop for all electrical equipment sales, testing, and engineering needs and a utility-class service provider to the Northwest T&D market.

**Vancouver, Wash. – Ph: 888-395-2021**

## TRADE SHOW CALENDAR

Visit with Group CBS companies at the following trade shows and exhibits:

**PowerTest**
**FORT WORTH, TX**
**March 14-18, 2016**
**19th Annual Electrical Safety, Reliability and Sustainability Conference & Exhibition**
**AUSTIN, TEXAS**
**April 14-17, 2016**
**2016 IEEE T&D**
**DALLAS, TX**
**May 2-5, 2016**
**HydroVision**
**MINNEAPOLIS, MN**
**July 25-29, 2016**
**Doble Circuit Breaker Test & Maintenance Training Conference**
**PITTSBURGH, PA**
**Dates TBA**
**POWER-GEN International 2016**
**ORLANDO, FL**
**December 13-15, 2016**