

The Silicon Valley Wire

The latest news from the electrical industry in Silicon Valley

1st Quarter 2014

CH Reynolds Wires Data Centers For PG&E's New Gas Operations Center

PG&E's 10,000 square foot state-of-the-art video monitoring center features a video wall approximately 90 feet long that is monitored around the clock by 85 employees.

When Pacific Gas and Electric Company (PG&E) decided to build a state-of-the-art dedicated gas operation and control center recently in San Ramon to monitor its natural gas operations, it turned to San Jose electrical contractor CH Reynolds to wire the on-site data centers that connect to the operations' video monitoring "nerve center."

THE new facility, located at 6121 Bollinger Canyon Road, monitors the gas distribution and transmission system that encompasses a service territory from Bakersfield to Eureka. It is designed to ensure public and staff safety and improve reliability and operational performance of the gas transmission and distribution system. PG&E is also making San Ramon the headquarters for its natural gas operations and will have about 1,600 gas system employees there by the end of this year.

CH Reynolds brought its experienced Data Division to the project, with Senior Project Manager John Anderson on board to shepherd the critical data center cabling through the build out process. The project began in February 2013 and wrapped up in mid-summer at the facility's location at Bishop Ranch One. Nicolyn Hernandez was the project manager for the PG&E side, with Matt Dalida as PG&E's project engineer.

CONTINUED ON PAGE 6



The PG&E San Ramon control center, wired by CH Reynolds, is designed to ensure public and staff safety.

Inside This Issue



Ray Scheidts Electric Designs Control Systems at Lockheed Martin's Space System Division.

2



Silver Creek Electric Wires New State-Of-The-Art Dialysis Center in San Francisco.

4



Redwood Electric Group Wires New San Jose Convention Center.

7

Ray Scheidts Electric Designs Control Systems To Manage Temperature Extremes During Satellite Testing At Lockheed Martin



Photo courtesy of Getty Images

Military and commercial satellites are frequently launched into space after being tested in environmental testing chambers at Lockheed Martin.

Preflight testing of satellites to regulate temperature extremes isn't part of the normal job description for most electrical contractors... For Ray Scheidts Electric Inc. of San Jose, it's just part of another day's work.

THE Ray Scheidts Electric team recently completed a complex environmental space testing project, focused on regulating extreme temperature controls for military and commercial satellites within four test chambers at Lockheed Martin Corporation's Space System Division in Sunnyvale. The test chambers simulate the different temperatures of space.

Project Managers Richard and Steve Morin, owners of Ray Scheidts Electric, were tasked with modernizing the sensitive temperature controls, including upgrading Variac heat zone controls. Included were the design and building of controls for four environmental test chambers, including the A1, Delta, Sep and Vega Chambers.

The four chambers ranged in size from 10 feet by 10 feet (the Vega Chamber) to 100 feet by 60 feet (the Delta and A1 Chambers). The number of heat zone controls also varied from 12 heating zones for

the smaller chambers to 100 heating zones for the largest chambers. The Sep Chamber had 69 heating zones.

Although many environmental tests are performed in vacuum chambers before a satellite is launched, the ability to regulate internal temperatures is one of the most critical tests that satellites and other systems encounter in space. Facing the sun, a satellite can get hotter than any desert, and in the shade, it can be colder than the Arctic. Either extreme can wreak havoc on a satellite's heating controls.

Systems To Regulate Temperature Lockheed Martin's Space System Division



Photo Courtesy of Ray Scheidts Electric

690 Variac cabinets installed by Ray Scheidts Electric next to the space simulation chamber.



Photo Courtesy of Ray Scheidts Electric

The front of the Variac Heat Flux Control Panel built and installed by Ray Scheidts Electric.

The Morin brothers, who are experienced designers of automated control systems for industrial and commercial use, performed a variety of program design tasks to meet Lockheed Martin's needs for enhanced functionality and reliability in temperature regulation testing of the satellites. These tasks included monitoring the Variac positions, adding high speed programmable overcurrent protection to all Variacs, installing a Variac safety system and upgrading control room displays of each Variac zone.

In the build phase, Ray

Scheidts Electric installed zone overcurrent protection, upgraded zone voltage transmitters and control room displays, and installed a Variac power loss safety system in the four test chambers. The upgrade to the temperature controls was the first comprehensive rework of the system since the late 60's.

To complete the \$900,000 project, Ray Scheidts Electric worked with Steve Wyatt, a consulting engineer and four electricians from the International Brotherhood of Electrical Workers (IBEW) Local 332 in San Jose. The project

was initiated in August 2012 and completed in early 2013.

Vehicle testing is carried out in large specialized vacuum chambers that can be pumped to closely simulate the space environment. Huge doors facilitate vehicle loading and unloading. Large Variac power supplies provide controlled power to heater elements inside the chamber. There can be up to 100 Variac heat zones within the largest chambers, to control simulated solar-IR heating of critical spacecraft systems.

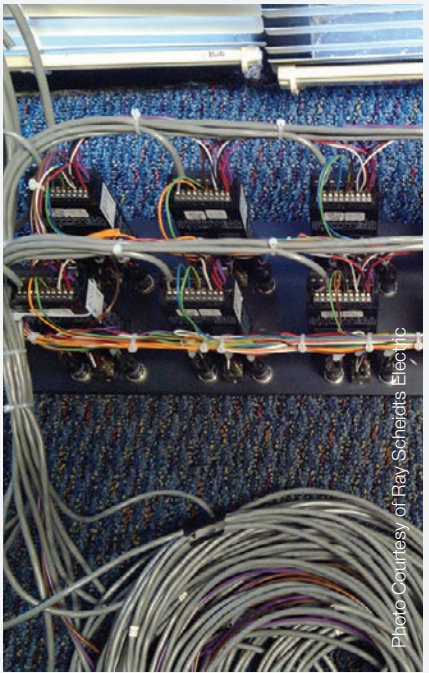


Photo Courtesy of Ray Scheidts Electric

Image of the back of the Variac heat flux control panels built and installed by Ray Scheidts Electric.

CONTINUED ON PAGE 8

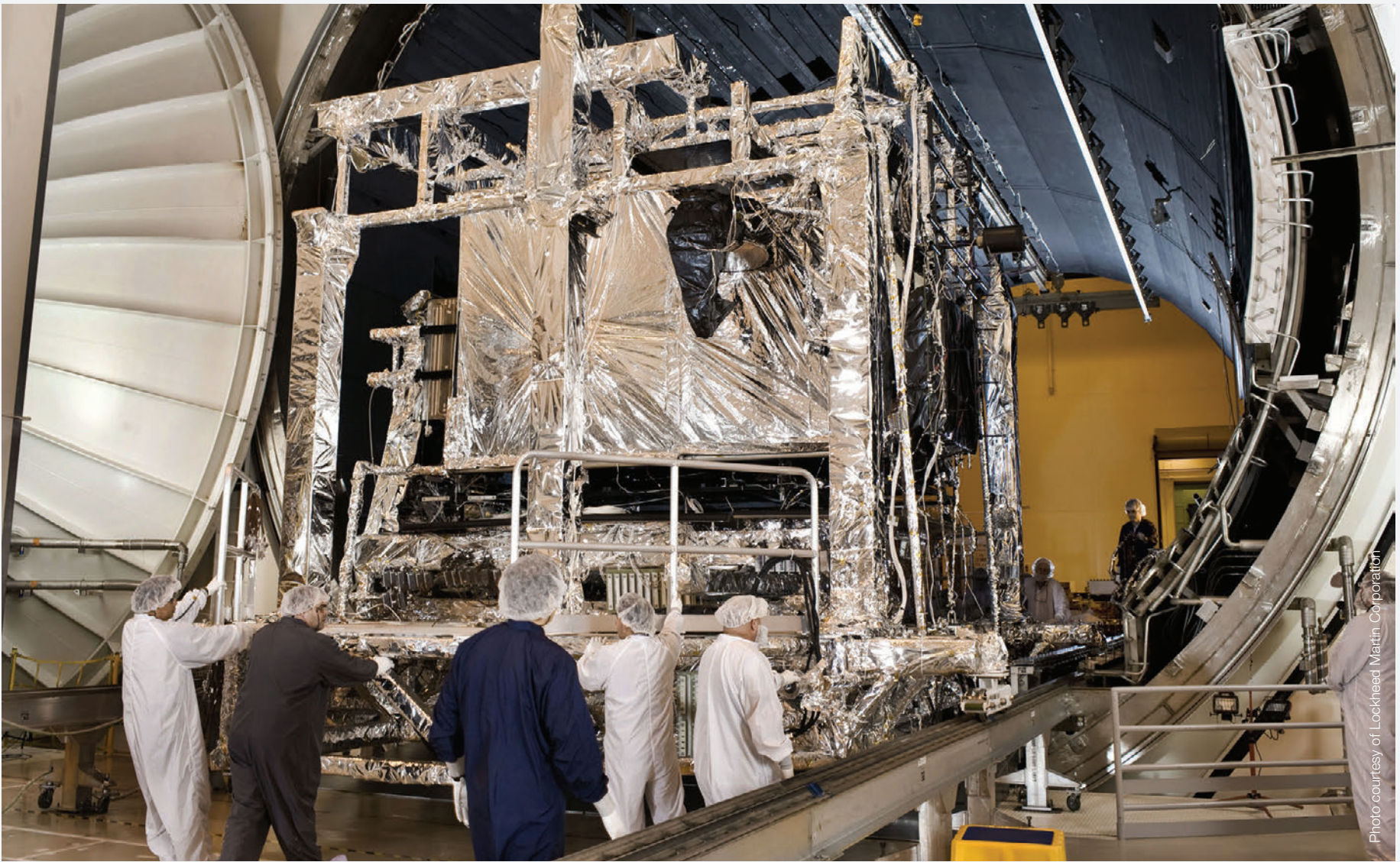


Photo courtesy of Lockheed Martin Corporation

Technicians move equipment into an environmental testing space chamber at Lockheed Martin.



Satellite Dialysis' new outpatient treatment center is one of the nation's premier providers for patients with chronic kidney disease.

Silver Creek Electric Wires State-Of-The-Art Dialysis Center

Silver Creek Electric, Inc., known for its expertise in the healthcare sector, just completed a new state-of-the-art dialysis treatment center and adjoining water treatment facility in San Francisco, which is slated to open this spring.



Silver Creek Electric team members include:
LEFT TO RIGHT: Rudy Salazar, Foreman; Paul Sudano, Journeyman; Joe Lovecchio, Foreman

SATELLITE Dialysis, a 9,000 square foot outpatient center at 1700 California Street, will contain 20 to 30 beds within its patient treatment area and will feature a high tech filtration and cleansing system. It also offers a waiting room, doctor offices and a break room. Silver Creek Electric began the project in the summer of 2013.

Satellite Dialysis is part of Satellite Healthcare, one of the nation's premier providers of services for patients with chronic kidney disease. Satellite Healthcare, headquartered in San Jose on Santana Row, operates some 40 dialysis centers located throughout the U.S.

Silver Creek Electric is providing all electrical and low voltage services to Satellite Dialysis in San Francisco, plus energy efficient lighting, a lighting control system, a fire alarm system, and

a nurse call system. The facility is OSHPD inspected and certified. The general contractor is The Core Group.

Juan DeHaro of Silver Creek Electric served as project manager for the installation. Joe Lovecchio and Rudy Salazar, foremen from Silver Creek Electric, supervised the project. They were assisted by OSHPD trained electricians from the International Brotherhood of Electrical Workers Local 332 in San Jose.

The heart of the facility is the patient treatment area and the adjacent high-tech water

treatment facility. The 1,200 square foot water treatment facility performs the essential functions of cleaning, balancing and recirculating the blood from each dialysis patient. A control system installed by Silver Creek Electric manages the water treatment facility's electrical operation.

Cabinetry in the wall beside each patient station serves as the conduit for the electrical and filtration systems. Silver Creek Electric connected the filtration system within the water treatment center to each station through the



Silver Creek Electric is providing all electrical and low voltage services to the Satellite Dialysis treatment center in San Francisco.



Patient stations at the Satellite Dialysis center are set up for maximum comfort with overhead LED TVs and ergonomic and massage chairs, wired by Silver Creek Electric.

cabinet sleeve, which holds all of the electrical connections, as well as the plumbing, hoses and filtration system.

Patient stations are set up for maximum comfort and contain a comfortable chair with ergonomic and massage features, plus an overhead LED TV wired by Silver Creek Electric. Silver Creek Electric installed a SimplexGrinnell Nurse Call system on the wall beside each patient station. The system also has a handheld feature for the comfort and convenience of the patient.

Silver Creek Electric installed a Title 24 energy efficient fluorescent lighting system throughout the building that uses T5 lamps. The Siemens fire alarm system installed by Silver Creek Electric includes

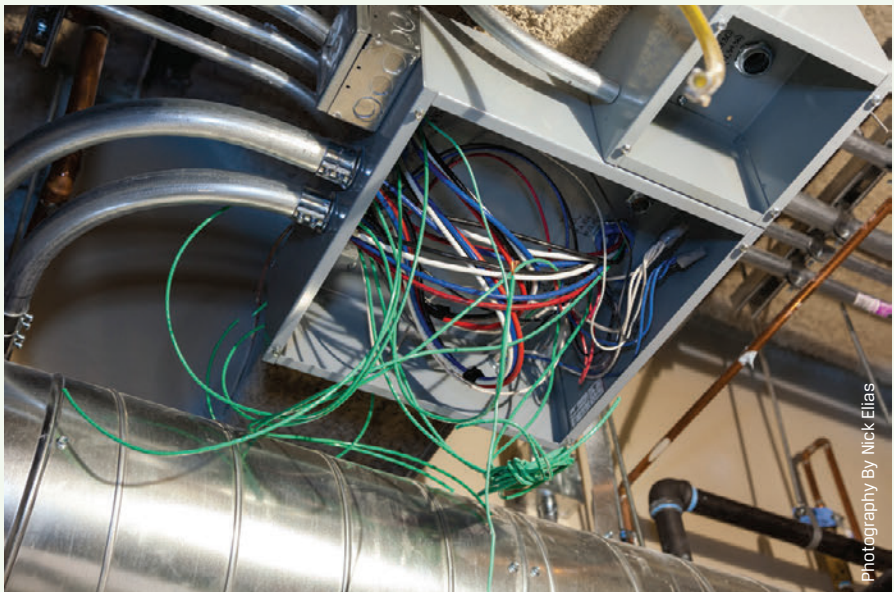
smoke detectors, duct detector, a visual stroke system and an enunciating audible system.

Silver Creek Electric, Inc. is an IBEW-NECA electrical contractor headquartered in Milpitas. Silver Creek works in the corporate, institutional and industrial sectors of the electrical contracting industry, including healthcare. The company's healthcare clients include the Regional Medical Center of San Jose, Sutter Medical Center in San Francisco, and the Jewish Home in San Francisco.

For more information about Silver Creek Electric and its services, contact Juan DeHaro, CEO at 408.321-9094, or jdeharo@silvercreekelectric.com or go to www.silvercreekelectric.com



Silver Creek Electric installed a Title 24 energy efficient fluorescent lighting system throughout the building.



Silver Creek Electric completed extensive wiring to the lighting and fire alarm systems at the Satellite Dialysis treatment center in San Francisco.

SILVER CREEK ELECTRIC PROJECT TEAM LIST SATELLITE DIALYSIS/SAN FRANCISCO ELECTRICAL AND LOW VOLTAGE WIRING:

- OWNER:**
Satellite Healthcare, San Jose
- ARCHITECT:**
Entos Design, Dallas, TX
- GENERAL CONTRACTOR:**
Core Group, Carlos Degadillo
- ELECTRICAL AND DATA CONTRACTOR:**
Silver Creek Electric
- FIRE ALARM CONTRACTOR:**
Silver Creek Electric
- PROJECT MANAGER:**
Juan DeHaro, Silver Creek Electric
- FOREMEN:**
Joe Lovechhio and Rudy Salazar, Silver Creek Electric
- JOURNEYMAN:**
Paul Sudano, Silver Creek Electric
- ELECTRICIANS:**
Members of IBEW Local 332, San Jose



CH Reynolds wired the on-site data centers at PG&E's new Gas Operations Center with over 100 miles of network cables.

CH Reynolds Wires Data Centers For PG&E's New Gas Operations Center

Continued From Page 1

The centerpiece of the \$38 million dollar complex is the Gas Operation's 10,000 square foot video monitoring center, which showcases a video wall approximately 90 feet long, and is monitored 24x7 by 85 employees working in shifts around the clock. The video wall gives PG&E engineers, crews and other workers real time information about the status of its natural gas operations through computers, banks of monitors, and high speed digital connections. The control center monitors approximately 7,000 miles of gas transmission pipelines and 42,000 miles of distribution mains. Employees at the center have access to thousands of bits of data that is refreshed every 10 seconds. In the control center, PG&E employees study computers with maps of the transmission and distribution pipeline network. They are connected to the gas pipeline systems through fast fiber-optic cables.

CH Reynolds wired each of the 1,200 square foot data center rooms that feed data to the video monitoring center. CH Reynolds first brought Cat 6 horizontal Ethernet cable connected to the video monitors into each of the two serving rooms. Each monitor had from two to eight cables. Then CH Reynolds wired the backbone ties to the two server rooms with single mode and multi-mode fiber. CH Reynolds then completed the handoff cabling to both server rooms, setting up patch panels.

About 20 technicians from the International Brotherhood of Electrical Workers (IBEW) in San Jose worked with CH Reynolds to complete the cabling. The company's technicians wired the 30 cabinets sitting between the racks of each of the two data centers for redundancy and then connected the data centers to each other. The floor of the control center is connected with about 100 miles of network cables. CH Reynolds used prefab fiber and copper from Panduit Corp. for the rack to rack ties. Panduit Professional Services acted as the consulting design engineer on the project.

CH Reynolds faced a number of challenges on the project, including working with structural design changes to the data centers that were made mid-installation.



PG&E's control center with video monitoring is the "nerve center" of PG&E's natural gas transmission and distribution system.

"We are an experienced data center contractor," said Anderson. "This job was really about wiring two small data centers within a state-of-the-art control center and meeting a tight deadline. It was imperative that we use off-site prefabrication to meet deadlines. The client was able to preview the racks during pre-construction to insure that the quality met or exceeded their expectations and also to minimize any waste from arriving on the job site."

CH Reynolds is the largest woman-owned electrical contracting company in Silicon Valley. The company's past data center clients include Sony, Brocade, NetApp and Cisco. For more information about CH Reynolds and its data center services, contact Shelly Paiva, President, at 408.436.9280, John Anderson, at 408.217.2214, or see www.CHReynolds.com.

CH REYNOLDS ELECTRIC TEAM LIST

PG&E GAS OPERATIONS AND CONTROL CENTER

DATA CENTER WIRING:

- OWNER:**
PG&E
- OWNER'S REPRESENTATIVE:**
Nicolyn Hernandez, PG&E
- PROJECT ENGINEER:**
Matt Dalida, PG&E
- GENERAL CONTRACTOR:**
Sunset Development Company
- DESIGN AND ENGINEERING:**
Panduit Professional Services, Tim Lindsey
- DATA CONTRACTOR:**
CH Reynolds
- SENIOR PROJECT MANAGER:**
John Anderson RCDD
- SUPERINTENDENT:**
Jack Toland
- FOREMAN:**
Kevin Doughty
- TECHNICIANS:**
Members of IBEW Local 332, San Jose

CH Reynolds team members include:
LEFT TO RIGHT: Jack Toland, Superintendent; Eddie Hernandez, Vice President of Data Services; John Anderson, Senior Project Manager of Data Services; Kevin Doughty, Foreman



The renovated and expanded San Jose McEnery Convention Center offers 169,957 sq. ft. of new flexible convention space, wired by Redwood Electric Group. The expansion includes a new Grand Ballroom of over 35,000 sq. ft. and over 27,000 sq. ft. of new flexible meeting space, along with renovation and integration with the existing convention center.

Redwood Electric Group Wires Renovated And Expanded San Jose Convention Center

ICS Integrated Communication Systems Chosen To Perform AV Technology Upgrade

Redwood Electric Group of Santa Clara played a major role in the \$130 million renovation of the San Jose McEnery Convention Center, which recently opened to great reviews. Redwood Electric Group performed all the electrical and data services for the expanded meeting and event center, and also completed the new fire alarm and security installations, which were complete replacements of the existing systems. Mike Guarino was the Project Manager for Redwood Electric Group. Integrated Communication Systems (ICS) of San Jose was chosen by Redwood Electric Group as the AV contractor. ICS installed digital signage equipment throughout the Center and integrated a new sound system within the expanded area of the facility. Mark Berlo was the project manager for ICS. 60 electricians and technicians from IBEW Local 332 in San Jose worked for Redwood Electric Group on the project.



Photography By Nick Elias

To create the digital signage, ICS installed flat panels around the entire convention Center. Video content is streamed from the City's network to each display position to direct the public and promote events managed by the City.

Redwood Electric Group rewired the renovated Executive Ballroom and Pre-Function spaces as part of the scope of work at the San Jose Convention Center.



Photography By Nick Elias



Photography By Nick Elias

Redwood Electric installed the Convention Center's new security operations center to monitor the new CCTV and card access system as well as the new Notifier fire alarm and voice evacuation system.

REDWOOD ELECTRIC GROUP TEAM LIST

SAN JOSE MCENERY CONVENTION CENTER

ELECTRICAL, DATA, FIRE ALARM, SECURITY SYSTEM, AUDIO VIDEO:

- OWNER:**
City of San Jose
- OWNER'S REPRESENTATIVE:**
Department of Public Works
- ARCHITECT:**
Populous/HMC
- GENERAL CONTRACTOR:**
Hunt Construction Group
- ELECTRICAL CONTRACTOR:**
Redwood Electric Group
- REDWOOD ELECTRIC GROUP PROJECT MANAGER:**
Mike Guarino
- AUDIO VIDEO CONTRACTOR:**
Integrated Communication Systems, Inc. (ICS)
- ICS PROJECT MANAGER:**
Mark Berlo
- ELECTRICIANS AND TECHNICIANS:**
Members of IBEW Local 332, San Jose

Ray Scheidts Electric Designs Control Systems To Regulate Temperature Extremes During Satellite Testing At Lockheed Martin's Space System Division

Continued From Page 3

"A Variac varies or controls the voltage going to the heating element," said Steve Morin. "The higher the voltage, the more heat. There are many heating elements inside these test chambers, which simulate a solar environment. We are designing and installing controls that regulate the heat of the element."

Ray Scheidts Electric designed and installed the controls in nearby control rooms for each thermal chamber. "The system monitors the current, and we can set up the current readings locally in the control room," said Morin. "Before the advent of these automated control systems, you had to go into the chamber itself and set up everything at each Variac."

"During the testing, we are simulating conditions that will occur in space," said Morin. "The Lockheed engineers set up test probes on the satellites and then they run a predetermined test on it within the vacuum chamber for six to eight months, under

the temperatures that they would encounter in space. We are controlling the Variac and telling it basically what temperature to maintain. We are trying to help them catch a problem before they send the satellite into space."

Morin said the new control system was a great improvement over past efforts to regulate each Variac by hand. "In the past, if they blew out a heating element, they had no good way to fix it without interrupting the tests," he said. "They had to stop the tests, go in and fix the element, and then start the tests back up. With the automatic control system we installed, the zone overcurrent protection (OCP) allows you to fine tune the load automatically. You can adjust all 100 zones right on the computer screen. With this system, you only lose functionality of one zone, and can recalibrate the other zones to make up if one zone is bad. You don't have to go out to the Variac anymore to make an adjustment."

To set up the Variac controls, Morin and his team pulled 10,000 feet of wire from 12 to 16 multiconductor cables in the control room. Then 110 feet of cable was pulled from the control room back to each of the Variacs. The project included over 30,000 terminations.

The next step was to upgrade the zone voltage transmitters and control room displays. This involved installing individual meters/manual controls to monitor each zone. "Now they can monitor 100 zones simultaneously



Ray Scheidts Electric team members include:

REAR LEFT TO RIGHT: Jose Chavez, Apprentice; Hendrick Vloo, Journeyman; Jeff Parsons, Journeyman; Joe Graham, Material Handler; Neil Joiner, Journeyman; Richard A. Morin II, President; Steve Morin, CEO; Francisco Bonilla, Foreman; Daniel Huerta, Apprentice; Richard A. Morin III, Material Handler

FRONT LEFT TO RIGHT: Eduardo Favela, Journeyman; David Stephens, Foreman

just by looking at them, or taking manual control in the event of a computer problem," said Morin.

Finally, Morin and his team installed a Variac Power Loss (VPL) safety system. If any Variac loses power, this system automatically returns it to a "safe position" of zero volts before its power is restored.

The system prevents possible damage to heater elements inside the chamber. A large display panel allows operators to disengage any zone VPL function if required for system troubleshooting or recovery from an unexpected event.

For more information about Ray Scheidts Electric Inc. and its work with automatic control systems and other electrical services, please contact Richard Morin at 408.292.8715 or go to www.RayScheditsElectric.com

RAY SCHEIDTS PROJECT TEAM

LOCKHEED MARTIN SPACE SYSTEMS HEAT ZONE CONTROLS MODERNIZATION:

PROJECT MANAGERS:

Richard A. Morin II, President;
Steve Morin, CEO

CONSULTING PROCESS ENGINEER:

Steve Wyatt

FOREMEN:

David Stephens
Francisco Bonilla

MATERIAL HANDLER:

Richard A. Morin III
Joe Graham

JOURNEYMAN FROM IBEW LOCAL 332, SAN JOSE:

Neil Joiner
Eduardo Favela
Hendrick Vloo
Jeff Parsons
Emmanuel Rodrigues

APPRENTICE:

Daniel Huerta



Image of the back of the Variac Heat Flux Control Panels built and installed by Ray Scheidts Electric.