PCI News and Views

SPRING 2007

PCI Energy Services LLC

A Subsidiary of
Westinghouse Electric Company LLC

www.pci-energy.com

Comanche Peak SGRP Completed in Record Time

Westinghouse Electric Company and subsidiary PCI Energy Services (PCI) were an integral part of the recently completed, world-record Steam Generator Replacement Project at TXU Power's Unit 1 Comanche Peak Steam Electric Station. The outage's breaker-to-breaker duration was 55 days, two hours, and 19 minutes - almost 10 days ahead of schedule and shattering earlier world records by almost 10 days.

The Comanche Peak SGRP started on February 24. PCI's pre-outage scope included preparation of the four Replacement Steam Generators (RSGs) with machine removal of the hydro-static test covers on the Auxiliary Feedwater, Main Feedwater, Main Steam and Reactor Coolant System (RCS) nozzles / safe ends. PCI then performed Laser Templating and three-dimensional modeling of the RSG critical interface locations (RCS nozzles and support feet). After modeling, lasers were used to align PCI's custom-designed and built Omega 9B CNC machining system for final nozzle machining, resulting in four perfect RSG fit-ups. Four pup pieces were also welded to the Main Steam nozzles to eliminate pre-heat and post weld heat treatment during the outage.

Replacement SG at Comanche Peak

Comanche Peak Steam Electric Station Unit 1

The outage scope included severing the existing piping systems for removal of the old Steam Generators, Laser Templating of the existing RCS piping and the machining of weld preps using PCI's Omega 9B CNC machines. After fitup of the RSGs, PCI performed welding on the RCS hot and cold legs (eight welds), using PCI's Narrow Groove Welding Systems, and performed machine welding on the Main Steam spools (nine welds). In total, PCI performed 21 welds (including the four pre-outage welds). The Comanche Peak SGRP was completed on April 20.

PCI's outstanding results included no rework and no weld repairs. Additionally, PCI completed the project ahead of schedule and under budget, while completing a perfect 21 out of 21 first-time quality, large-bore, narrow groove pipe welds.

Comanche Peak marks the completion of PCI's 38th SGRP. PCI's next SGRP is scheduled for the fall 2007 outage at Palo Verde Unit 3.

President's Message

Jimmy Morgan

I would like to say thanks to all of the employees who worked diligently through the winter preparing for spring 2007. Together we completed the outage season with outstanding results. The spring outage marks the ending of the busiest year in the history of PCI, and its successful outcome demonstrates the strength and perserverance of PCI. Our continued focus on quality, safety, and customer satisfaction will lead to future success in the years to come.

More than 1000 employees worked together to complete a number of very successful projects this spring. PCI played a significant role in the world-record Steam Generator Replacement Project (SGRP) at Comanche Peak. The outage's breaker-to-breaker duration of 55 days was 10 days ahead of schedule. This was PCI's 38th SGRP. PCI delivered 30 Pressurizer Nozzle Structural Weld Overlays (SWOL) at six plants. Intense pre-outage preparation and attention to detail during these SWOL projects were key factors in achieving excellent results. We successfully completed several emergent projects, including a boat sample extraction and Reactor Vessel Head Penetration repair at Byron. This project required significant effort on the part of PCI's Engineering Group as this was the first time defects were found in a low-susceptible Reactor Vessel Head, and the location of the flaw presented unique challenges. PCI was the only company who could deliver a customized engineering solution and equipment to accomplish this task in the timeframe requested by the customer. PCI also completed a turnkey Feedwater Heater Replacement at Columbia.

> "PCI's commitment to the Westinghouse Customer 1st initiative has greatly improved performance and quality for our customers, and continues to grow within our company."

PCI's commitment to the Westinghouse Customer 1st initiative has greatly improved performance and quality for our customers, and continues to grow within our company. Maintaining a strong safety culture and technology leadership are vital as well in upholding our status in the industry as the premier specialty welding and machining company. PCI is utilizing the Customer 1st Human Performance tools to ensure success with our customers in these important areas.

Looking ahead, some projects for the fall 2007 outage include an SGRP at Palo Verde Unit 3, SWOL projects at four plants, and a cross under piping turbine repair at KRSKO. PCI is also preparing itself for future opportunities in the large component replacement and new plant construction markets.

Thank you all again for your commitment and determination throughout FY07. With the continuance of our hard work and dedication, I am confident that FY08 will be a phenomenal year for PCI.

Jimmy Morgan,
President

Customer 1st Update

Westinghouse's Customer 1st initiative continues to grow within PCI with the additions of Dan Trombola (Customer 1st Leader), Bruce Newton (Greenbelt for Development), and Greenbelts Jimmy Morgan, Jay Rendos and Scott Johnson.

During the past six months, Customer 1st has supported the Structural Weld Overlay (SWOL) product line assisting and facilitating several events such as the Byron SWOL Root Cause Analysis (RCA) and the SWOL Design of Experiments (DOE). During the RCA investigation and with the assistance of several sophisticated Customer 1st analysis tools, the team was able to identify, with a high probability, many of the previous project error precursors. Utilizing these results and combining them with other expert information, a DOE was built to identify and validate the optimal welding parameters leading into the spring outage season.

The utilization of the Customer 1st techniques was a key factor in the successful completion of the PCI SWOL projects in the spring outage.

The Customer 1st team would like to thank everyone for their continued support and dedication. This teamwork and commitment has positively differentiated PCI from its competitors.

Customer 1st

Spring SWOL Projects Finish Successfully

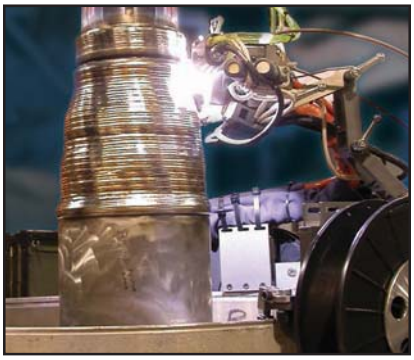
Westinghouse successfully designed, installed and inspected 30 Pressurizer Nozzle Structural Weld Overlays (SWOLs) with nearly flawless results at six U.S. nuclear plants this spring. The Westinghouse "Alloy 600 Team" that completed the SWOLs is made up of employees from Westinghouse and its subsidiaries, PCI Energy Services and WesDyne International.

Key to the success of the spring SWOL projects was the extensive application of Westinghouse's Customer 1st initiative to incorporate root cause analyses and lessons learned from the fall 2006 campaigns. Westinghouse began the spring '07 campaigns having implemented several key changes: rigorous redesign/requalification of the weld process; enhanced welder training programs; enhanced on-site project staffing; upgraded tooling to improve weld head alignment; establishment of sulfur mitigation processes; and addition of a sacrificial layer UT (Ultrasonic Testing) to the process sequence.

> "My gratitude and appreciation are to the entire Westinghouse/PCI/WesDyne team for their commitment and attention to details."

Welding equipment was specifically modified to facilitate welding on Pressurizer Top Nozzles during the spring outages. A new low-profile weld head was qualified for specific SWOL projects. The welding system configuration was optimized to minimize interferences on Pressurizer Upper Head Nozzles, allowing plants to avoid removal of large support structures that often interfere with standard welding systems.

Welding operators, thoroughly trained in Alloy 52 welding parameters, used Assigned Progression™ methodology for the welds. After welding, Speed Contour™ tooling was used to provide a surface suitable for final UT examination. WesDyne technicians performed the final Performance Demonstration Initiative (PDI) UT examinations.



Overlay Weld Head

Westinghouse's SWOL performance during the spring outage season yielded outstanding results. One example showing tremendous success was at Callaway. The project was performed at half of the predicted radiation dose for the Westinghouse phases of work. The customer's shielding efforts contributed significantly to the final accumulated dose of 10.3 Rem, more than 10 Rem less than planned dose estimates. Dan Stepanovic, Callaway Pressurizer Overlay Site project manager, discussed the project's successes further.

"There were a lot of smiles - mine the biggest - when the last of the ultrasonic examination results came in and I could announce to station management that the Pressurizer Overlay was complete, on schedule, and under dose budget. There were no recordable safety incidents and no recordable indications on any of the nozzles. My gratitude and appreciation are to the entire Westinghouse/PCI/WesDyne team for their commitment and attention to details. Without your effort, success wouldn't have been possible," he said.

Emergent SWOL Work Completed at Farley

Farley Nuclear Power Station issued an emergent request to PCI for supervision, labor, equipment and utilization of the Westinghouse Structural Weld Overlay (SWOL) process to perform a SWOL on the Farley Unit 2 Pressurizer Surge Nozzle.

PCI was prepared to provide specialized equipment and qualified personnel who had been trained in the SWOL process in preparation for the spring outage season. Upon notification from the customer, PCI prepared procedures, readied the equipment and mobilized personnel to site to perform the overlay.

PCI completed the required overlay with no recordable safety events, within the planned schedule, within the expected dose levels and with no repairs. The customer was very pleased with the response and performance results demonstrated by PCI.

PCI Successfully Tackles Spring Emergent Projects

Thermal Sleeve and Funnel Replacement

On March 21, PCI began performing emergent work on the McGuire Nuclear Station Unit 1 Reactor Vessel Head Thermal Sleeve. PCI provided project management, supervision, technician labor and equipment for the replacement of the Thermal Sleeve and Funnel.

The thermal sleeve-cutting tool drives an electrode through the sleeve until the cut is complete. The cutting tool severs the thermal sleeve perpendicular to its axis and leaves the cut face with a flat surface, suitable for welding the new thermal sleeve section to the penetration.

The thermal sleeve installation and welding tool utilizes the gas tungsten arc welding (GTAW) process. The weld is autogenously bonded. The thermal sleeve is held in position during delivery and welding by a remotely operated clamping device.

The result was a successful weld that passed inspection and allowed the Maguire plant to resume full operational capacity.

Thermal Sleeve Removal

PCI was called upon to perform emergency repairs for Vogtle Electric Generating Plant's spring 2007 outage. During the Reactor Vessel Head inspection, WesDyne International found that 26 thermal sleeves exhibited varying degrees of abnormal wear on the OD surface of the sleeve at a point coinciding with the end of the penetration tube. Four of these 26 sleeves showed significant wear, as much as 0.125 inches deep over nearly an inch in length. This was significant due to the fact that the nominal wall thickness of a thermal sleeve is only 0.188 inches.

Thermal Sleeve Cutter in Mock-Up

PCI mobilized both personnel and equipment to site over the weekend and arrived on site March 26 to begin in-processing. In-processing, equipment shakeout, setup and all necessary briefs were completed in three days and all four thermal sleeves were removed on March 30.

During this emergent work PCI's entire crew only received 0.722 mRem in dose (the estimate was for 3 Rem) without any personnel contamination events (PCEs). The crew's professionalism prompted Southern Nuclear Operating Company's project engineer, Paul Sims to say, "Westinghouse and PCI did an excellent job in response to the Vogtle thermal sleeve issue. Your technical support was first rate and your response time was commendable."

Turbine Repair

On April 25, Farley Nuclear Power Station issued an emergent request to PCI for supervision, labor and equipment to provide support in correcting the damaged area inside a 36-inch-diameter Turbine Cross Under Pipe.

A PCI crew was already on site at Farley in support of other projects. This allowed the team to be mobilized and ready to perform very expeditiously.

PCI performed a stainless steel weld overlay of the damaged area using its GTAW manual welding process. The weld overlay area was approximately 2 inches wide and covered the full circumference of the 36-inch pipe.

The work was completed in a timely fashion, with no safety issues and with successful welds to the full satisfaction of the customer.

Valve Removal and Replacement

On May 24, Columbia Nuclear Generating Station issued an emergent request to PCI for the immediate cutout and replacement of five condensate valves.

PCI immediately prepared and mobilized to cutout and replace two 24-inch valves and three 20-inch valves.

PCI performed staging of the replacement valves. Cutout, removal and disposal of the old valves was coordinated by Energy Northwest. PCI performed rigging and assisted in getting the old valves to the appropriate disposal locations. Installation, quality control and Non-Destructive Examination personnel and support was also provided by PCI.

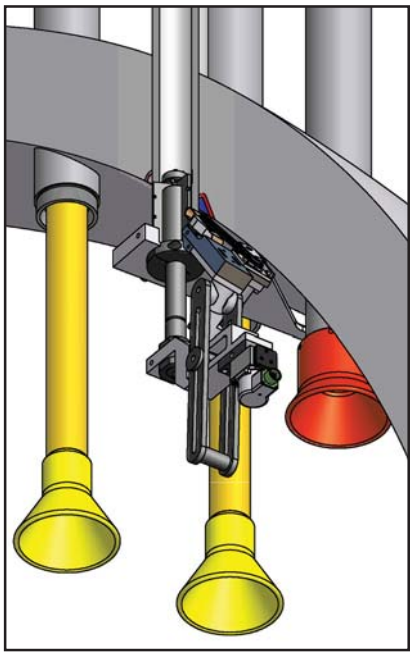
PCI successfully completed this project on June 12.

Spring 2007 Engineering Review

PCI successfully completed a boat sample extraction using Electric Discharge Machining (EDM) in the spring outage. This work was performed on an emergent basis and was completed on April 27.

After unacceptable indications were found in the Outer Diameter (OD) of Reactor Vessel Head Penetration 68, PCI was contacted on April 10 to extract a metallurgical sample (boat sample) from the flawed area. The application at the plant was especially challenging due to the location of the flaw (downhill side of an outer periphery penetration).

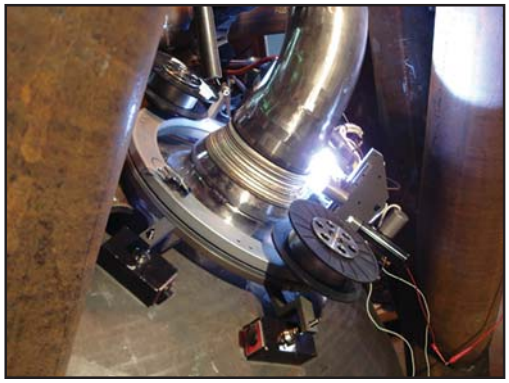
Using existing technology as a starting point, PCI's Engineering Group responded quickly to develop custom EDM tooling that would fit within the limiting physical constraints under the RVH and capture a sample acceptable for analysis. The space available for the tooling was further restricted by the as-built conditions of the RVH. Utilizing the UT data from WesDyne International and manual dimensions taken at site, PCI was able to develop a 3-D CAD model of the RVH, which included the flawed penetration weld region. The 3-D model was used to optimize the EDM tooling configuration, estimate the sample excavation size, and design mock-ups for tool qualification and personnel training.



EDM Boat Sample Tooling

After the sample was successfully removed, the penetration was shortened to provide access for welding the excavation left from the sample extraction. An existing EDM tool was modified and used to shorten the penetration. The excavation was manually welded flush with the penetration tube outer surface to restore the original contour.

PCI completed qualification of a new low-profile weld head for use on a Structural Weld Overlay (SWOL) project in the spring outage. The system configuration was optimized to minimize interferences on Pressurizer Upper Head Nozzles. The working envelope was reduced by 2 inches to 3.5 inches along the weld. This is a significant development because it will allow plants to avoid removal of large support structures that often interfere with standard welding systems and add to the costs, schedule and dose intake for overlay repair programs.



Low-Profile Weld Head

PCI's tooling development engineers used AutoDesk Inventor software to perform 3-D modeling and ALGOR for finite element analysis (FEA) to design and optimize this equipment. The 3-D model of the welding system is incorporated into 3-D plant models of the Pressurizer Upper Head area to confirm clearance envelopes and minimize interference removal.

The entire low-profile welding system, which includes the weld head and the track assembly, weighs only about 98 pounds; the weld head itself, 37 pounds, and the track assembly, about 61 pounds. This makes the system much easier to handle and mount on the Pressurizer compared to previous systems. The new track assembly includes a removable, C-shaped insert making it easier for the operators to install than the previous track that involved setup of two separate sections of the track. The new system also improves weld head "tracking" as it rotates around the nozzle.

The system features extended, motorized axial travel. Having 5 inches of motorized travel reduces the number of manual adjustments the welders need to perform as the overlay progresses along the length of the weld. The camera perspective also was improved to provide a better view of the weld puddle.

PCI EnergyServices

Safety Doesn't Hurt, Accidents Do!

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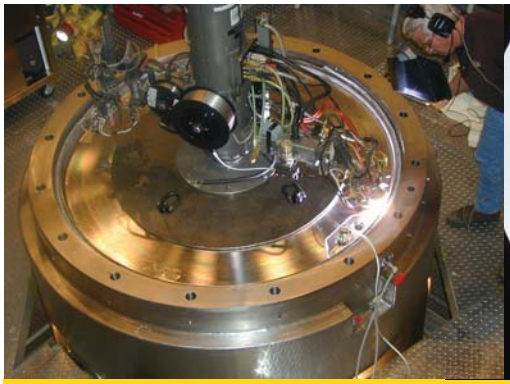

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