

S.T. COTTER

TURBINE SERVICES, INC.

Turbine Tribune

New Heights for S.T. Cotter Turbine

S.T. Cotter Turbine Services, Inc. went to new heights this fall...literally. Using our new, elevating, generator rotor pulling, trolley system (i.e. Runway), we were able to safely perform a rotor out inspection on an elevated, outdoor generator without having to pick and move the rotor.

Let's start from the beginning. We were contracted to remove an Elin generator rotor in Nova Scotia, Canada. We had very few problems with logistics or the local labor union as we have worked in Canada



before. The plant had our tool containers unloaded, so when we had boots on the ground we were ready to rock.

We had a great crew consisting of local union millwrights and our own union millwrights that have been certified in erecting the runway. We partnered the local union workers with

our people to maximize the work load.

While a crew disassembled the generator, the runway erection crew started unloading and setting the columns and other components in order of installation.

New Heights
Cont'd on page 2

Generator Inspections - Why Spend Money? Part 2

Since our last newsletter, S.T. Cotter Turbine Services, Inc. has discovered another generator rotor in very poor condition while performing a simple major inspection. This unit is a 52MW ABB air cooled generator approximately 30 years old. It was operating without issues prior to the outage, but the generator did have some history of thermal and load sensitivity. The unit is driven by a gas turbine and operated in a peaking environment – seeing daily starts and stops.



Photo 1

Due to operating demands and winding condition, this unit has experienced rotor overheating, insulation and block burning and contamination, and copper turn migration in the rotor end turns (Photo 1). The copper end turn movement

was so extreme it was determined to be approaching the point of coil inversion which is an occurrence where the bottom coil turns are able to move upward towards the retaining rings when under the centrifugal forces of operation (Photo 2, page 3). This failure mechanism immediately trips the unit on vibrations, distorts the copper windings to the point of no repair, potentially causes hard grounds that can damage the rotor forging, and potentially renders the rotor “not fit” for repair.

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S.T. Cotter
Turbine Services,
Inc.

Special points of interest:

- > S.T. Cotter utilizes the “Runway”
- > The importance of continued training
- > Axis Mechanical moving to a new location
- > Highlighted Employee
- > S.T. Cotter Turbine introduces their new Controller
- > Steam Turbine and Generator Users Group– 2017 Call for Papers

Thank you!
We appreciate your
business!

Inside this issue:

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Training and Upgrades are where it's at.

Training is the key to our success, both professional and craft training. This makes us better at our jobs, on the cutting edge of technology and processes, casting us as a leading quality services provider in this industry. Our Union administers hundreds of classes in Upgrades, Human Performance, Scaffold, Foreman, Computer, and many more that form the Millwright into a professional and not just a project at a time. In our office, the Project Managers and Officers also take upgrade classes and training. A recent class was on new OSHA guidelines; OSHA is an ever changing and evolving group; an interesting one at that.

As a perfect example of how training makes a huge impact, recently, while Millwright Britt Severs was performing a pipe strain on a pump at Flint Hill Resources, Rose-



mount, MN, another craft was planning some maintenance work on the same system which could have adversely affected the operation of the entire unit - possibly shutting down production. Britt, realizing the potential issue, spoke

up, through his professionalism training, he was able to relay his information in a non-confrontational manner -stopping a major issue. Britt exemplified training & professionalism in this instance.

Keep up the good work!!

Shawn Cotter,
VP of Operations
612-424-5614
shawn.cotter@stcorterturbine.com

Britt exemplified training and professionalism at its best in this instance. Keep up the good work!!

Shawn Cotter, Owner,
VP of Operations

New Heights continued from page one

When the generator crew was ready after two and one half shifts of disassembly work, we set the first pieces of the runway. From that point on, it was like playing with an old toy just adding more pieces.

After approximately twelve hours of runway assembly, we were ready to go forward with the rotor removal portion of the project. With confidence and ease, we pulled the rotor out of the stator stopping only to install the carriages under the rotor and to make a side shift move using the hydraulic trolley. We had the rotor in position, locked down, and turned over to the generator test crew in short order.

After a week and a half of testing and cleaning, our crew returned to site to "push" the rotor back into the generator using the same trolley system it sat on during the testing process.

I have done a lot of rotor removals in my career, and this project was by far the safest and best method of removing very costly equipment. As for the human factor, not one millwright was ever put in jeopardy of hurting himself or others. A friend once told me "it isn't a problem if you can throw money at it to make it go away." Well, S.T. Cotter threw money at elevated generator rotor removal. Run-

way.....No Problem!!

Dave Byerley
Project Manager/Sales
Dave.Byerley@stcorterturbine.com



"I have done a lot of rotor removals in my career, and this project was by far the safest and best method of removing very costly equipment. "

Dave Byerley


Happy Holidays

 Merry
 Christmas and
 Happy New
 Year!
 From everyone
 at
**S.T. Cotter
 Turbine
 Services, Inc.**

Axis Mechanical Group's on the move!

Axis Mechanical Group in Houston, Texas is looking forward to the New Year, in a new home. We've purchased a new building! Axis Mechanical Group headquarters is a brand new 12 thousand square foot building, located off Beltway 8 in Pasadena, Texas. Neighboring the largest concentration of petrochemical plants in the United States, the new facility will feature 2200 square feet of office space and conference rooms, a

huge industrial shop area, plus a secure outside equipment yard, with plenty of space to grow. Quite an improvement from our humble beginnings complete with theft issues and rat infestation. The new Axis Headquarters enjoys a prominent position along one of the Houston area's busiest industrial transportation corridors, with thousands of feet of signage area visible to customers and competitors alike, making

AMG's already impressive presence undeniable. Axis Mechanical Group is also very proud to announce a new addition to our family. Colton Lane van Sant hit the ground in July! Congratulations to new Mom and Dad Crystal and Justin van Sant!

John Hanks
President,
Axis Mechanical Group
Jhanks@axismechgrp.com



"We're looking forward to our new home in 2017!"

John Hanks

Axis' Spotlighted Employee

Congratulations to this issues' spotlighted employee, Colby Bleakney. Colby has an accounting degree, and started with us back in June to help out while Crystal was on maternity leave, and did a great job.

After her return, Colby went to Dodge City, Kansas as time keeper for the Track system on the Koch project, not an easy job, then immediately after, drove to Minnesota to help with the financial leadership transition.

Colby's multiple skills are proving to be very valuable to the entire organization, and we are certainly lucky to have him on our team.

John Hanks
President
Axis Mechanical Group



Wishing you a Happy Holidays and Prosperous 2017 from all of us at Axis Mechanical Group!

Generator continued from Page 1

Fortunately for the owner, they decided prior to their scheduled outage to do a "rings off" inspection on the rotor windings. As a result, they were able to return the rotor to "as new" condition prior to having a catastrophic failure. The rotor was rewound with the existing copper, some end turns were replaced with new copper as needed, and new blocking was designed, manufactured, and installed (designed for better mechanical strength

and coil stability). The repairs were costly, but the cost was still a fraction of the cost of a new rotor and lost revenue during a forced outage. The repairs were also executed in a scheduled outage window



Photo 2

during low demand season. Was the cost of a major inspection during a scheduled turbine outage worth it? That depends on the cost of lost revenue and unavailability of your facility during peak season – only you have the answer. If you require dependability, we have options.

Rodney Johnson
VP Sales,
ronney.johnson@stcotterturbine.com

"If you require dependability, we have options."

Rodney Johnson



S.T. Cotter Turbine Services' welcomes our new Controller

Jeanne Nick accepted the position as Controller for S.T. Cotter Turbine Services, Inc. in early October. She comes with experience in several industries and is learning our industry in record speed. She

brings in fresh ideas and talents to S.T. Cotter that will help us to continue to grow along the way. Jeanne moved to Minnesota two years ago to be closer to her family. In her free time, Jeanne

enjoys time with her family, especially her new granddaughter - Emerson,. She also enjoys time with her mutt - Dodger, and kayaking on the many lakes and rivers in Minnesota.

AVOID THE LINES AND REGISTER ONLINE!

Visit www.powergenerationweek.com
Enter this promo code when registering: **PGW16-ET**
Register by December 6 to receive a Fast Track pass via e-mail and pick up your complimentary visitor badge at registration



Visit S.T. Cotter Turbine and Axis Mechanical in Booth 4827 at Power-Gen

Power Gen Conference is December 11^h – 15th at the Orange County Conference Center in Orlando FL. S.T. Cotter Turbine and Axis Mechanical will be exhibiting in booth 4827.

S.T. Cotter Turbine Services will have a video streaming about the "Runway" Rotor Removal System along with a Rotor Trolley and Yoke portion in our booth to *Stop by to check it out!*

Shawn Cotter, Nichole Cotter, Rodney Johnson, Dave Byerley and John Hanks will be there to talk with you about your upcoming projects. Click on the link in the orange box to the left, for your free hall pass registration.



Quality is not an act, it is a habit.
Aristotle



Runway platform during the first set up at the shop.



The Runway's first project was a success!

We look forward to seeing you in Orlando!

We're on the web!

www.stcorterturbine.com

and

Facebook

<https://www.facebook.com/pages/ST-Cotter-Turbine-Services-Inc/34768126859153>

S.T. Cotter Turbine Services, Inc. A complete turnkey services provider with a focus on steam turbine, gas turbines and precision rotating equipment in refineries, power plants paper mills ethanol plants and other heavy industrial facilities. We provide service for planned maintenance, emergent outages and balance of plant work.

Our field technicians staff with 75 years of project management. Our Workforce has over 200 years of combined experience in the field. Our Current EMR is .69.

Safety and Quality are #1!

S.T. Cotter Turbine Services, Inc.

Your Complete Turnkey Service Provider



S.T. Cotter Turbine Services, Inc.
2167 196th Street East
Clearwater, MN 55320

Phone: 612-424-5614

Fax: 320-558-2365

E-mail:

info@stcorterturbine.com



Steam Turbine and Generator Users Group-2017— Call for Papers

The Steam Turbine and Generator Users Group Conference will be held August 1st – 3rd, 2017 at the Best Western Ramkota in Bismarck, ND.

The conference is geared for Users to learn solutions, new technologies and network with fellow users and vendors.

At the 2016 conference,



a steering committee was formed to help guide future conferences.

We are looking to continue conference growth, and would like to add your case studies of successes and lessons learned to share with the group for 2017.

If you and your company are interested in sharing your case study, a problem that was solved or overcome, send your letter of

One of the best User Groups I've Been to.
Ottertail Power

intent and outline if your presentation to missy.pemberton@stcorterturbine.com by **December 16th, 2016.**

For more information call 612-424-5614



S.T. Cotter Turbine Services, Inc. hosted a Employee Safety and Customer Appreciation Event at a Minnesota Wild Hockey Game. Saturday November 19th at the Xcel Energy Center. We had a great time despite the third period loss to the Avalanche. Thanks to all those in attendance for making it an unforgettable experience!



Union – "Very thorough presentation, Professional Development Training was interesting."

An Attendee