

# Redkoh Industries

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## Jim Bridger's Control Overhaul

**O**n a rather balmy mid-February day in Rock Springs, Wyoming, Senior Engineer Zac Phelps overlooks 120 brand new Transformer Rectifier controls with a sense of pride and relief.

Over the past four years the Jim Bridger Power Plant has undergone a TR and control overhaul. Four identical electrostatic precipitators, 6 gas paths with each being 5 fields deep.

Redkoh Industries sat down with Zac to talk about the process, the trials and tribulations, and the successes of a major upgrade.

*RS: What were the main factors in deciding to upgrade your control system?*

ZP: Reliability was the biggest factor, parts were failing and becoming obsolete. We were no longer getting the support



Jim Bridger Power Plant, sits just outside Rock Springs, Wyoming

we required and repairs just took too long.

*RS: When going over the options for new controls what were must haves?*

ZP: I was very lucky in that the plant let me take the reins on this project, so I was able get exactly what I wanted.

The most important thing for me was to have a system that was completely turn-key. The control manufacturer that was awarded the job needed to design, supply and install

the controls. I was not going to compare a bid unless it included the installation.

Completely new cabinets were discussed but, I felt that a retrofit was the best option for our facility.

There were other things I wanted as well, having a keypad and display at every cabinet was a must have, our old system had 1 keypad and display per gas path, and we would run into a lot of communication problems.

It was also very important for us to be able to tie all the TR information into our DCS.

*RS: How did the idea of Switch Mode Power Supplies get introduced?*

ZP: I would say around 2006/2007 through word of mouth we started to hear more about switch mode power supplies. We were fortunate enough to get a SMPS Demonstration in by Redkoh.

They installed the demo cart on an inlet field. The power levels went up and the power levels in the field behind it went up. It was a good test because not only did Redkoh prove their product but, it proved that the Switch Mode Power Supply technology worked.

*RS: Explain how the bid process went for this project.*

ZP: Material costs between all the companies was comparable but, installation cost was where the big difference was.

The other big difference in cost was that some companies were going to struggle with temperature issues in the penthouse, that meant

extra money had to be allocated to cooling and exhaust systems.

When I ultimately decided to go with Redkoh it was because they offered a completely turn key project, no extra cooling systems needed to be put in place, and being able to use our standard TR, that we never had any issues with, at elevated frequencies was perhaps the biggest factor.

*RS: What was the process like once the job was awarded?*

ZP: As expected we had a few bumps in the road in the very beginning, but once the installation crew got more comfortable with what they were doing the process really started to fly by.

We were able to install all the 60 Hz control panels while the plant was online, prior to the scheduled outage.

The crew would isolate one cabinet per day, completely gut the existing components, install and wire a brand new control panel that was pre-assembled.

Because of the pre-outage work the project was always on schedule

and it would change the way we would complete the next 3 units.

*RS: How so?*

ZP: Well, the fact that we could do the upgrade online wasn't a thought at first, but like I said after the first unit it completely changed the way I wanted to approach the remaining units.

For the following 3 units, the upgraded was done completely while the plant was online. Because the Redkoh control was able to operate at variable frequencies, we were able to run at 100 Hz with our existing TR. Once the outage did finally come around, we went in and changed all the TR's on the SMPS fields to a 400 Hz TR.

Really the biggest benefit was when it came time for commissioning. We were able sort out any problems that we had one at a time and not all at once when the timing was critical.

The crew was able to get approximately 1 control upgrade per day, sometimes more. We were able to do a full upgrade without losing any working time at all. It took a lot of stress off of everyone, and was something that operations especially seemed to like.

*RS: You hired a General Contractor & Consulting Service, Bilcatco Construction LLC, to help with the upgrade process. What was the reasons and benefits behind that?*

*How valuable of a tool was it for you?*

ZP: I've known Bill of Bilcatco for sometime, he's always been involved with the plant. I had many projects going on throughout the upgrade and Bill was someone that I could trust in my absence. It took a lot of stress and pressure off of the installation crew as well because Bill served as a liaison between the team and the plant.

*RS: Now that the project is over, what issues have you experienced up to this point?*

ZP: Most, if not all issues have been plant related issues like broken wires or full hoppers.

If there even was a suspected problem the Redkoh guys were always available. Just having the availability of them by simply sending a text message or by calling and getting to speak to the president or vice president of the company made me feel good about the decision that I made to go with them.

*RS: Closing Comments?*

ZP: Bottom line, the Switch Mode Power Supplies have helped cut our emissions, reduce our maintenance, as well as ensure the longevity of our ESPs at Jim Bridge and I think we all learned a lot from this process and it took all the parties involved to make this happen as smoothly as it did.

## About Redkoh

Redkoh has been a global leader in the design and development of controls for the Electrostatic Precipitator industry since 1984. We work with clients in a wide variety of sectors all over the world, always with the same goal: delivering the right products to meet their needs and make them more competitive.

Our success is the result of innovation, insight, and our commitment to breaking new ground. Electrostatic Precipitators are about clean air and efficiency and as the green shift continues and our customers keep reaching for higher standards, we will maintain our focus on providing them with exciting, efficient new technologies.

Redkoh Industries  
300 Valley Road  
Hillsborough, NJ 08844  
Phone +1 (908) 369-1590  
Fax +1 9908) 369-1594

[www.redkoh.com](http://www.redkoh.com)