Resources:
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Industries We Serve:

Municipal Water:
Tell us About Your Project

Power Generation:
Tell us About Your Project

Liquid Natural Gas:
Tell us About Your Project

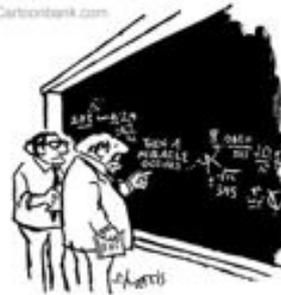**Industrial Water:**
Tell us About Your Project

Other Information

Cook Legacy Project Questionnaire

Featured In This Issue:

Problem Solving with TRIZ

"I think you should be more explicit here in step two."

We take inventing stuff pretty seriously, so as we re-launch our newsletter we're spending our first few issues of Cook Legacy eNews invention that might be useful for you, and how we've put them to use. Obviously, our goal is to keep you connected to Cook Legacy you call us. However, we also hope that the information that we share in each newsletter is helpful to you.

The Theoretical Part:

The cartoon above defines the a typical invention process. In 1946, a Russian patent engineer named Genrich Altshuller began compil inventions submitted for his review. From this database Altshuller came up with a general rule for how inventors invent. His goal was occurs" approach to inventing. He named the program TRIZ, a Russian acronym meaning "Theory of inventor's problem solving." TRIZ way to solve a problem, but it is one useful tool.

There is a whole model of TRIZ problem solving, but we think two major elements of TRIZ might be useful as you design:

- **Defining the Major Contradictions:** The idea is that anything can be boiled down to a certain number of parameters, and tha in conflict. An engine can produce more torque but this might increase the weight. Resolving this torque/weight contradiction ca

- **A list of 40 Principles Used in Most Inventions:** These are common "moves" to resolve the contradictions and are used any the satellites that orbit the Earth. Some examples are making things in segments (think IKEA), flipping it over, putting holes in one piece serve multiple purposes (think a Brillo pad/sponge thingy), nesting little things in bigger things (pretty much anything a thing (somebody should do this with guitar strings), perform a function the other way around (the old Duck Hunt game on Nir television screen is actually shooting the gun), etc. These are just examples we thought about over breakfast. If you can find be whole list HERE:

http://www.triz40.com/aff_Principles.htm

The Part About Water:

Here are some examples of interesting designs supported by the use of TRIZ:

1) Fish Screen at a Dam — A screen required significant structural integrity and a well distributed air blast to clean the screen. Thes and cost of the structure**.**

The fundamental contradiction: Weight vs. Performance.

The "move": Make a single piece serve multiple purposes. After some analysis, we modified the frame of the fish screen so that the doubled as AirBurst distributors. This allowed for consistent flow distribution while minimizing complexity, weight, and cost.

2) Make up Water for Ballast — A company planned to develop a port, and the ship ballast intake would be higher than allowed by system needed to move a high volume of water (in this case make-up water for a ship's ballast) in a short time. This brought a series play.

The fundamental contradiction: Time (to fill up tanker) vs. Interchangeability (lack of a specialized tank).

The "move": Use an intermediate tool. Rather than pumping water directly into the ship, the company could use a separate tank or time. This eliminates the need for any specialized equipment. Additionally, because it stretches out the time allowed for pulling the ne the use of smaller, cheaper pumps, screens, and pipes.

These are just two examples of how this invention method can be used in our industry. If you try this method, please let us know how have a problem we can help with, please <u>contact us</u> with your ideas.

Thank you,
<u>Randy Surface</u>, Communications Director

Featured Product: Coanda Effect Screens

Cook Legacy is proud to announce a collaboration with Norris Screen of Tazewell, VA. The two companies are designing and building Coan used in run-of-river hydropower settings to divert water. They employ the Coanda Effect — the tendency of water to follow a curved surface

Cook and Norris are the only companies to produce Coanda screens on this scale.

As always, Cook Legacy is committed to building screens that are safe for the environment and friendly to aquatic life. This is no different w are used in run-of-river settings, the Coandas have a minimal impact on the environment. And instead of fish getting caught in an installed sc curved surface of the screen.

If your hydropower or water diversion needs could be met by a Coanda Effect screen, <u>contact Cook Legacy.</u>


Case Study

Majer, Iraq Water Treatment Plant

Soon water from the Tigris River will flow through screens designed and built by Cook Legacy. Cook Legacy provided an Intake and AirBur treatment plant in Iraq. The ancient waterway is also rife with biofouling problems. In response, Cook Legacy built four screens with its prop system also had to be durable enough to stand up to Iraq's harsh environment.

To address the language barrier Cook Legacy modified our RAMA™ control system to make a panel that was operable based only on pictur With a our RAMA™ control software and third-party graphically based touch panel, we minimized any translation errors. We designed uniq shown below, on which pictures represented a part or function in the system. For instance, if an operator presses a valve icon, that accesses tl

The same graphic interface that is used in Iraq could make O&M of your system easier.
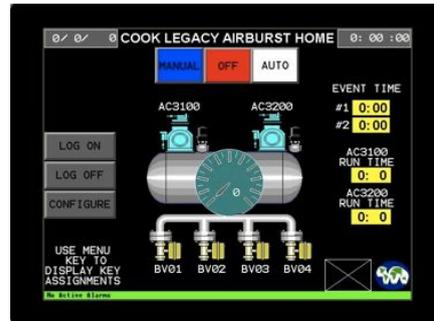
We are eager for the Majer, Iraq system to go online in the coming weeks and to have had an impact on this historic region of the world.

If you would like more information on this project or Cook Legacy, please call 770.414.1861 or email <u>info@waterscreen.com.</u>