

The NPC Solution – Improving Pump Performance



NPC H14XHC



NPC H24XHC, designed to be more serviceable with the flange style coupling.



NPC Pump Station located at the potato farm.

As potato season fast approached in the northwestern United States last year, one of the leading commercial producers in the potato industry assessed the condition of their vertical turbine pumps as part of the ongoing preventive maintenance program. The farm determined that four of its pumps needed to be overhauled to meet anticipated irrigation demands, which included four new bowl assemblies, column pipe, flanged couplings, line shaft and stuffing boxes. While this farm could choose from any pump manufacturer to replace its pumps National Pump Company was selected based on the producers' positive

experience when three new pumps were installed in early 2009. Today, this potato producer looks to National Pump to be their solution provider to improve pumping performance and efficiency for their pumping units.

NPC, through its representative Hunter Hawk, provided a pump system with a flow range of 3,600 GPM to 11,200 GPM, utilizing H14XHC, E18LC and H24XHC bowl assemblies. Due to the fact that the materials of construction were standard and "off-the-shelf," NPC was able to fabricate the required materials, assemble the bowl assemblies, and deliver the four completely re-built

pumps within seven weeks of receipt of the order. "Our large selection of inventory and capability to quick-ship product is what we do best," says Pat McNulty, Customer Service Manager.

Hunter Hawk performed the start-up of all four units in mid-March, and reported that the customer was grinning from ear to ear when he saw how well the pumps ran. Pat added: "When you've got to have the water, and you've got to have the water on time, give National Pump Company a call. We are ready, and prepared to **Deliver More.**"

January Managers Meeting

Our new brand promise of "**Delivering More**" was the topic of discussion when NPC's Branch Managers, Sales Managers and Operations Managers gathered together for a 2-day meeting in January, in Glendale, AZ. Breakout sessions included discussions about sales goals, product development, quality control, and new processes and procedures. Emphasis was on "**Delivering More**" in all areas of operation, from providing our customers with the best customer service and sales experience, to providing the best product with the best value to our customers. "**Delivering More**" means we strive to deliver to our customers the best Performance, Quality and Service programs available on the market.

Not all was devoted to meetings, as staff gathered for a Mexican dinner and to recognize Richard Bowie, NPC's International Sales Manager and API Market Sales Manager. Richard,

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From the Desk of...
Roger Jeschke



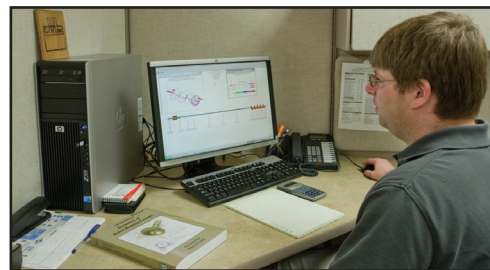
The Spring Edition of the NPC newsletter gives all of us a chance to look forward into 2010 and a chance to appreciate what this time of the year brings to us. For NPC it brings us to the best time of the year for our AG-Irrigation business, preparation of fields & planting of crops, with the hope of a successful growing season and harvest of the crops that are grown, such as citrus and vegetables in Florida, to peanuts and cotton in Georgia, to cotton, soybeans and rice in Mississippi, to wheat and corn in Texas and the Great Plains, to vegetables, fruits and a multitude of the everyday food products grown out West. The water that NPC pumps to meet these demands touch all items that can be purchased at your local grocery store. This also emphasizes the core business that helped to build and continues to be one of the core markets of NPC – “The Agricultural Irrigation Pump”. For NPC this particular market for our products, through our network of pump installers and contractors will always be on the top of our “To Do List”, to help the American Farmers be the most essential and efficient self-employed business people in the World.

NPC Adds Rotordynamic Analysis Capabilities

National Pump Company (NPC) recently purchased DyRoBeS, a rotordynamic analysis software. This new software allows NPC to perform both lateral and torsional rotordynamic analysis in-house. These types of analysis requirements are often seen on API and large municipal projects which were previously outsourced.

A lateral analysis is performed to determine critical speeds which produce shaft displacements due to bending. Pumps operating on a lateral critical speed will likely have higher vibration levels and larger shaft displacements. This will lead to premature mechanical seal and bearing failures. In extreme cases, sudden catastrophic failure can occur, requiring the replacement of the entire pump. This type of analysis identifies the possible lateral critical speeds by determining the damped lateral natural frequencies and shaft displacements due to unbalance. Most (95% or better) designs are found acceptable; designs that are found unacceptable typically require changes to the bearing spacing.

A torsional analysis is performed to determine critical speeds which produce twisting within the shaft. Pumps operating on a torsional critical speed will fail due to shaft fatigue. This type of analysis identifies possible torsional critical speeds by determining the torsional natural frequencies and the alternating torsional stress. An endurance limit and fatigue calculation are done to ensure infinite life. The majority (85% or better) of designs are found acceptable; designs that are found unacceptable typically require the uses

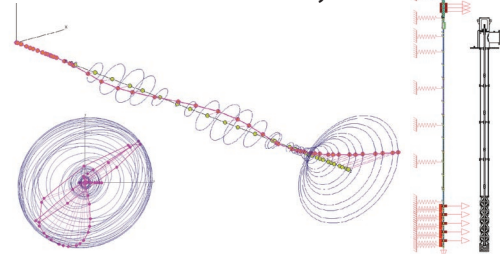


of a stronger shaft material or larger shaft diameter.

It is common for only a torsional analysis to be requested. A torsional analysis typically takes a couple of days to complete. A lateral analysis is rarely requested without a torsional analysis. A lateral and torsional analysis typically takes over one week to complete. Both types of analysis require additional data from the motor manufacture, which has a fee and adds approximately two week lead time.

The first analysis completed in-house was on a 350 hp 5 stage H14MC operating at 1785 rpm. This municipal job required a lateral and torsional analysis for any pump over 100 hp. The lateral and torsional analysis took one and a half weeks and resulted in a 44 page report. The design was found acceptable for both lateral and torsional resonant responses.

Feel free to contact A. Bruce Ticknor III (brucet@natlpump.com) at the Glendale corporate office with any questions about lateral and/or torsional analysis.



January Managers Meeting *(continued from Page 1)*

who joined NPC in 2007, was acknowledged for his achievement in exceeding 2009 expectations in sales growth and customer development in the Domestic API and International Markets. His ability to speak multiple languages and his knowledge of the API and international market has made him a valuable asset to NPC. We thank Richard for his never-ending hard work in making NPC well known in the API market and internationally.

Ken Kochamba, NPC's National Sales and Marketing Manager, presents Richard Bowie with the Outstanding Sales Achievement Award for 2009.



NPC Acknowledges AMC Industries (Texas)



This year's convergence of rain and snow has meant a loss of the crop prewatering season and has caused the agricultural season to experience a slow start for the states in the Great Plains region.

One exception is AMC Industries, which has become a major part of NPC's

agricultural market for the Texas branch. Located in San Antonio, TX and through their branch operation in El Paso, AMC Industries has placed orders for National Pump Company's column pipe, oil tube assemblies, and bowl units.

AMC started business in 1924 as Alamo Machinery Company, now known as AMC Industries. AMC currently offers over 10,000 line items related to turf and golf irrigation and domestic water systems, with eleven branch locations throughout Texas and Oklahoma. AMC's El Paso branch also includes the turbine irrigation product line

for the U.S. and Mexico.

Recently AMC experienced a need for a large quantity of column, tube and shaft assemblies and lineshaft pumps on a quick delivery schedule, at a competitive price. NPC's Texas branch responded and the result was an order equivalent to ten truckloads of turbine products. Tomas Rios of AMC's El Paso branch expressed that he enjoys selling National Pump products because he knows he is getting the best value for the price. It is good to know we are Delivering More to our customers by providing quality products at competitive prices.

NPC Salutes Miller Pump & Electric (Georgia)



Miller Pump & Electric Company has been selling National Pump Company pumps for almost 15 years. They have hundreds of wells in their service area and use NPC's large submersible and vertical turbine pumps because they know they can depend on NPC to deliver the best product and value.

Miller Pump & Electric team up with NPC to grow blueberries in South Georgia. Pictured at left is a Hi-Pro head assembly with a combined right angle gear drive pumping 2000 GPM for frost protection and irrigation.

The company has been drilling irrigation wells and installing pumps in the South Georgia area since the company's beginning, in 1971. Located in Douglas, GA. Miller Pump & Electric was founded by Jim and Voncile Miller. In 1977 their son Timmy joined the business and in 2007 he and his wife Patti Ann began running the business after Jim's retirement.

Being licensed electricians helps them in their business, but the majority of their work is the well drilling of agriculture and domestic wells, pump installations and

pump repair. Timmy also drills municipal and commercial wells in the entire state of Georgia. The company is well equipped to handle even the most challenging of jobs, with four drilling rigs, three pump hoists, and a large boom truck.

We salute Miller Pump & Electric Company for their loyalty to National Pump Company, for their years of promoting our products and working with us.

Miller Pump & Electric Company is serviced by our Vienna, Ga. Branch and Region Salesman Jimmy Johnson.

H14MO Makes Impact on AG Market (Mississippi)

The 2009 record rainfall in Arkansas and Louisiana and the near record rainfall in Mississippi resulted in the agricultural market taking some hard hits. NPC managed to survive this record downpour by coming out with our newest pump model, the H14MO Semi-Open Impeller, in late January 2009. This awesome flood pump is quickly becoming a favorite of local drillers over the competitor's similar size pump. With market demands up, we

have developed a complete line of the Semi-Open Impeller pumps ranging from our E10 model to the H14 bowl that are available for the 2010 season. We currently have five models available with more in development.

March ended with record sales for us in the MS Delta AG market. Our new products are being introduced to every driller and many have anticipated NPC offering open bowls for the AG market. For the first time

in the history of the agricultural market our competitors have someone on their heels and capable of taking over the market. Our "Delivering More" promise makes our customers aware that we have made a huge investment in our products, our people and our processes to give them unsurpassed Engineering, Quality and Performance.



SEE US AT THESE TRADESHOWS:

AWW & WEA SHOW

May 1 - 4

Hot Springs, AR

ARIZONA WATER ASSOCIATION

May 5 - 7

Glendale, AZ

FLORIDA GROUND WATER ASSOC.

May 7 - 8

Orlando, FL

AWWA - ACE10

June 20 - 24

Chicago, IL

N^{PC} NATIONAL PUMP
COMPANY, LLC

7706 N. 71st Avenue
Glendale, AZ 85303-1703

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SALES CONTACTS

Visit us on the web at: www.nationalpumpcompany.com

ARIZONA • (800) 966-5240

7706 N. 71st Ave., Glendale, AZ 85303-1703
(623) 979-3560 • Fax (623) 979-2177

Ken Kochamba
National Sales & Marketing Manager

Patrick McNulty
Customer Service Manager

Bruce Akin
Branch Manager

CALIFORNIA • (800) 868-9755

2790 S. Railroad Ave., • Fresno, CA 93725
(559) 497-5071 • Fax (559) 497-8816

Joe Mooney
Customer Service

Phil Sorondo
Export Applications

Mike McGaugh
Sales Manager

John Reed
Branch Manager

FLORIDA • (800) 994-3045

195 E. 3rd Street, Zolfo Springs, FL 33890
(863) 735-8222 • Fax (863) 735-8202

Ralton Albritton
Customer Service

Richard Bowie
International Sales Manager

Cliff Mishoe
Branch Manager

GEORGIA • (800) 741-2921

902 East Union St., Vienna, GA 31092
(229) 268-2921 • Fax (229) 268-7136

Jason Peavy
Sales & Customer Service

Jimmy Johnson
Southeast Sales Manager

Pat Joiner,
Branch Manager

MISSISSIPPI • (866) 668-4914

11176 Green Valley Dr., • Olive Branch, MS 38654
(662) 895-1110 • Fax (662) 895-5083

Colby Schultz
Applications & Customer Service

Wayne Dunn
Applications & Customer Service

John Pignoco
Applications & Customer Service

Jack Compton
Applications Dept. Supervisor

Pete Lavelle
Territory Sales Manager

Ken Colthorpe
Northeast Sales Manager

Jim Elliott
Regional Sales Manager

Steve Anglin
Branch Manager

TEXAS • (800) 745-5393

3107 Slaton Highway • Lubbock, TX 79404
(806) 745-5396 • Fax (806) 745-6668

Jacob Vasquez
Applications Engineer

Lynn Boyd
Applications & Customer Service

Jimmy Andrade
Territory Sales Manager

Steve Peck
Central Sales Manager

David Nolte
Branch Manager

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