## Biach's 50+ Years Time Line

**1955**
First RPV stud tensioner supplied for the Shippingport reactor

Biach then begins providing stud tensioning systems to GE, Westinghouse and Combustion Engineering for the emerging commercial nuclear industry.

**1967**
Biach supplies Control Rod cut off tool to Allis Chalmers

**1975**
Commonwealth Edison's LaSalle site becomes the first application of Biach's Quick Disconnect (QD) tensioner design.

**1976**
General Electric contracts with Biach for QD tensioners for its entire BWR-6 plant program.

**1977**
Biach engineers assist GE with hydro testing vessels in Rotterdam

**1978**
Westinghouse issues contract to Biach for design assistance and manufacture of its QA (quick acting) tensioner design.

**1979**
Biach designs 50% tensioning system for ICI flanges at the Calvert Cliffs plant.

Biach engineers perform load verification testing on drywell studs at the Leibstadt plant in Switzerland.

**1980**
Duke Power purchases first Biach Stud Drive Tooll for removing RPV studs at its McGuire plant.

The Nine Mile Point unit 1 plant converts to Biach's QD tensioner design.

Biach designs special stud tensioning system for anchoring Torus supports at the Fitzpatrick plant.
PF Avery purchases a custom tensioning system for reactor internals bolting.
Byron Jackson contracts Biach to develop a special "push-pull" hydraulic coupling tool for reactor coolant pump shafts.

**1982**
Biach designs special RCP shaft rotation tool for FP&L's St. Lucie site.

**1985**
Salem plant converts to Biach's QD design.
**1986**
Indian Point 2 unit converts to Biach's QD design.

Millstone I unit converts to Biach's QD design.

**1990**
The Millstone II plant and the Pilgrim plant both convert to Biach's QD tensioner design.

**1991**
At the ANS Conference in Washington, DC, Biach introduces an early concept of totally remote tensioning in its RSMR design

**1993**
Biach develops its QD-H tensioner, EPN pump and SEMS (stud elongation measurement system). St. Lucie becomes first user.

**1994**
TVA's Browns Ferry plant purchases Biach's QD-H tensioners, EPN pump, Stud Drive Tool, SEMS and Nut Rack

**1995**
PSE&G's Hope Creek plant purchases Biach's EPN pump and heavy duty Nut Rack.

Biach and GE partner to provide ComEd's Dresden site with Biach's QD-H system, EPN pump and SEMS unit.

**1997**
Biach and GE partner to provide ComEd's Quad Cities site with Biach's QD-H system, EPN pump and SEMS unit.

**1998**
New York Power Authority's Fitzpatrick plant purchases Biach's QD-H tensioners with Hoist and Tractor Control Handles, EPN pump, Stud Drive Tool, SEMS and Nut Rack.

Taiwan Power builds the Linkuo Training Center and orders additional QD and QA tensioners, EPN pump and SEMS from Biach.

Diablo Canyon retrofits existing tensioners to the QD-H design and orders Biach's EPN and SEMS

**1999**
Texas Utility's Comanche Peak plant orders Biach's new Electric Stud Drive Tool (ESDT)

**2000**
Sequoyah & Watts Bar sites buy Biach ESDTs

Korea Electric's KO-RI site orders Biach's EPN

So. California Edison's San Onofre plant buys ESDTs, EPN pump and SEMS unit

**2001**
Exelon's Byron plant purchases ESDTs to share with Braidwood site.

**2002**
San Onofre plant converts tensioners to QD-H.

NEK Krsko plant (Slovenia) purchases new QD-H tensioner, EPN and SEMS package.

Beaver Valley adds Biach's ESDTs

Dominion orders Biach's EPN and new tensioner housings (QD-H design) for Surry and No. Anna

**2003**
ANGRA plant (Brazil) orders Biach's EPN, test blocks and spare RPV stud tensioner.

Exelon orders QD-H tensioners, to be shared between Braidwood and Byron sites, with elongation monitoring system (EMS), communication boxes, Hoist and Tractor Control Handles, LSA containers and Operator Training Package.

FP&L buys ESDTs for Seabrook & St. Lucie sites

San Onofre adds Biach EMS (elongation monitoring system) to its QD-H tensioners

**2004**
Constellation Nuclear orders new QD-H tensioners with EMS and EPN for its Calvert Cliffs site.

Dominion orders 2 ESDTs for No. Anna & Surry.

St. Lucie orders a 2nd EPN and new style console.

FP&L orders QD-H tensioners, EPN pump and storage containers for its Turkey Point plant

**2005**
Millstone purchases Biach's ESDTs

Cooper plant upgrades tensioners and adds EPN

Comanche Peak converts its QA tensioners to gear rotation design for nut turning, adds LCD style communication system and EMS feature.

**2006**
Point Beach plant orders Biach QD-H tensioners, EPN and ESDTs

Duane Arnold plant purchases Biach Nut Rack, QD-H tensioners and EPN pump

Columbia and Perry plants upgrade their tensioners and purchase EPN pumps

Callaway site upgrades its RPV stud tensioners with Biach's LCD communication system, electronic limit switches and conversion to hydraulic piston return.

Biach introduces the SCT – self contained tensioner as the *next generation stud tensioner*

**2007**
Callaway and Nine Mile 2 order Biach's SEMS III units for taking stud elongation readings

Nine Mile orders Biach's EPN and upgrades its older QD tensioners to hydraulic return with new LCD com boxes and EMS components.

Nine Mile purchases Biach's Nut Rack

Millstone 3 orders a Biach gearing conversion kit for their QA style tensioners

*Between 1993 to 2007, over 40 sites replaced older, pneumatic pumping units with Biach's EPN, electronic limit switches and communication systems and added SEMS products for taking fast elongation readings.*