

TENTH ANNUAL VENDOR/ CONTRACTOR PROFILE SPECIAL SECTION

Pages 54-107 contain advertisements and “advertorial” information about products and services provided by the companies in the nuclear industry listed below:

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IMPLEMENTING WEB-BASED QUALITY SOFTWARE TO ENSURE SAFETY, OPERATIONAL EXCELLENCE AND COMPLIANCE.

CATSWeb® by AssurX, Inc., is a comprehensive “all-in-one” solution designed to track issues and actions from identification through disposition and corrective action. Companies use the application to manage their corrective and preventive actions (CAPAs), nonconformances, commitment tracking, safety issues, condition reports, compliance issues, internal business assignments, audits and findings, supplier quality, and much more.

CATSWeb is the field-proven leader as the industry’s Quality Tracking System of choice — accessed by thousands of users worldwide 24/7. CATSWeb is not just a static data repository, it’s a collaborative, real-time dynamic workflow tool that assists you in your problem solving efforts. Powerful point-and-click query tools accelerate the identification of root causes and allow you to measure and monitor the results of your quality improvement programs.

And, your external business partners (suppliers, customers, etc.) already own all the software they need to participate in your quality improvement programs: a Web browser. You tailor the functionality available to each user by setting access permissions, functional restrictions, etc. Your external partners can see and do only what you want them to.

With an intuitive user interface that lets you define an unlimited number of customized workflows, CATSWeb lets you combine all of your quality processes into a *single*, reliable, enterprise-wide solution.

Because of the true Zero-Client™ architecture, the CATSWeb system works with any Web browser, on any client operating system, on your intranet or over the Internet. CATSWeb system validation can be performed once, from any machine on the network, and all client machines will function identically, regardless of

their configuration. Expansion of the system to other groups within the client community can be done virtually instantaneously, with no incremental deployment costs. With no client-side software to install, configure or qualify, users simply browse to the URL provided to them and begin using the system right away.



Built-in, point-and-click query functionality allows you to retrieve data from any and all fields in your forms. Create and save an unlimited number of queries.

Key Advantages of CATSWeb®

- True Zero-Client 100% Web-based solution.
- Fully customizable point-and-click graphical user interface (GUI).
- Highly reliable — engineered on true Internet architecture.
- Point-and-click administration (forms design, signature controlled workflow, escalation rules, etc.) eliminates the need for revalidation as the system is enhanced.
- Includes out-of-the-box, ready to use forms that you can easily modify.
- Fastest response times and
- smallest bandwidth consumption, since only pure HTML is delivered to the client computers.
- Full audit trail (record archives) and dual-password electronic signatures.
- Highly scalable to hundreds or thousands of users, independent of client browser version or client operating system.
- Effective analysis and decision-making capability provided through the unique ability to query all fields as named and configured across all forms.
- Rapid and efficient implementation due to ease of server installation and no client side software/validation.
- Rapid deployment through easy point-and-click configuration of workflow, forms, fields, rules, lists, signatures, etc. No programming required.
- Minimal training needed for users due to clean, intuitive interface with robust help files.
- Sophisticated access restrictions can be based on groups, departments, personalities and/or employees.
- Works with all reporting tools — Crystal Reports/Enterprise, Business Objects, Cognos, Brio, etc.
- Integrates with any external system, or internally developed applications and databases.
- Flexible and all-inclusive handling of an unlimited number of quality processes/forms (does not require additional modules or databases to be purchased or added.)
- *Field-proven* implementation and technology.

AssurX
ENERGY

► Visit: www.assurxenergy.com

MANAGE & SOLVE:

- Corrective & Preventive Actions (CAPA)
- Nonconformances
- Commitment Tracking
- Safety Issues
- Audits and Findings
- Supplier Quality
- Internal Business Assignments
- Condition Reports
- Compliance Issues
- Performance Metrics
- Plus much more...

ARE YOU READY TO TAKE CONTROL OF YOUR QUALITY?

CATSWeb® THE FUSION OF QUALITY IMPROVEMENT, PROBLEM RESOLUTION AND REGULATORY COMPLIANCE IN ONE WEB-BASED SYSTEM

As a quality professional, we know your time is very valuable. So when you're looking for a total solution for all of your quality assurance software needs, you don't need to look any further than CATSWeb® – a revolutionary Web-based system designed to be used in your secure intranet (LAN) or Internet environment.

Fully configurable, highly flexible.

Unlike other ordinary systems that have fixed data fields and forms, CATSWeb allows you to fully customize the system to your specific needs through simple point-and-click configuration tools. No programming knowledge required.

Create an *unlimited* number of forms to address *all* of your tracking applications, or modify one of the many forms already included with CATSWeb.

Set validation rules and default values, and easily link in data from external systems.

Powerful, but easy-to-use workflow rules can send reminder messages and automatically escalate overdue tasks.

Powerful analytical tools.

Ad hoc queries and reports ease the identification of root causes and quality trends, and make it easy to quantify the results of quality improvement programs.

Are you ready to take control now?

Call today, and we'll show you how hassle-free your quality process can become, then ask us how we can get you up and running within days...not months!



Clean, user-friendly interface.

Call today to schedule a live online demonstration!

408-778-1376, EXT 705

AssurX
E N E R G Y

www.assurxenergy.com
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Broader Horizons for a Powerhouse of a Supplier.



NOVA

**CURTISS
WRIGHT**
FLOW CONTROL

Intelligent Solution, Imaginative Products, Unwavering Support.

Nova joins a notable group of companies in the Curtiss-Wright Flow Control Family serving the commercial nuclear power generation market worldwide. These companies include:



By joining Curtiss-Wright Flow Control, Nova will provide a significant addition to their power and government market segments. Both companies have served the commercial nuclear industry since the beginning. Now Nova and Curtiss-Wright Flow Control are in a position to bring even more products and services to their customers.

Nova has long-term alliances with the majority of commercial nuclear facilities. Nova is also a major supplier to the Department of Energy, as well as OEM and A&E firms that support the nuclear industry. Nova's exclusive product and services offering includes nuclear related safety related fasteners, reverse engineering, supply chain management and inventory control, "N" stamped welding and fabrication and custom machining.

Nova is also the distributor and manufacturer nationwide for safety related products such as Unistrut™, PlasmaBond™ coating, AT&F fabricating and the revolutionary HydraNut®. All of Nova's products and services are supported by quality programs including; ASME NCA 3800 Section III, NCA 4000 NPT, ISO 9001, ANSI N45.2/NQA-1, 10CFR50 Appendix B, 10CFR71 Subpart H, Government & Military and our NVLAP Certified Test Lab.

Strategic Sourcing in the age of consolidation has never been stronger.

Now Curtiss-Wright Flow Control customers can benefit from Nova's Utility Stock Exchange®. Nova is currently under exclusive contract with many U.S. nuclear power companies. This proprietary program manages a utility's inventory and spare parts and has positioned Nova to be the preferred supplier for nuclear grade and other critical components.

Enertech

Enertech has been providing advanced technologies and innovative solutions that have supported the worldwide Nuclear Power industry for over thirty years. From its roots providing Paul-Munroe snubbers and hydraulic systems, Enertech has evolved into the foremost supplier of valves, pumps, actuators, diagnostic and test equipment, service and repair, to meet the unique requirements of nuclear power plants.



Trentec

Trentec's businesses include specialty equipment fabrication, diamond wire saw cutting, nuclear power plant equipment qualification, and third party dedication and supply of nuclear components. The company is also expanding to support new DOE contracts for large doors and airlocks. Trentec's customers include major nuclear power plant developers, including Bechtel, BNFL, Doosan Heavy Industry Corporation, Hynundai Heavy Industries and Westinghouse, as well as most nuclear and hydroelectric producers.

A legacy of accomplishments that traces its heritage back to the Wright brothers .





A DIVISION OF BARTLETT

“One-Stop Shopping”...ONE contractor to fill ALL your needs

WHO WE ARE:

Plymouth Mechanical is a new division of Bartlett that specializes in providing civil, mechanical, and full-service maintenance services. Plymouth Mechanical represents three long-standing companies of the Bartlett Maintenance Group: Bartlett Services, Inc., EXCEL Modular Scaffold & Leasing Corporation, and Deltak Manufacturing, Inc.

We realize the benefits of bringing together three leading companies to provide quality services under one management umbrella.

Customer benefits are three-fold:

- Streamlined administration
- Reduced overhead
- Maximized selection of the best maintenance solutions

WHAT WE OFFER:

Following are services provided by Plymouth Mechanical:

EXCEL Modular Scaffold • Industrial Coatings & Painting • Insulation • Asbestos Abatement • Facility Maintenance • Building Janitorial Services • Carpenters • Mechanics • Welders • Electricians • Valve Repair • High Pressure Washing • Lead Abatement Program • Metal Fabrication Services • I&C Technicians • Heat Exchange Services



The quality you have come to expect from Bartlett continues in our new Maintenance Division.

Corporate: 60 Industrial Park Road, Plymouth MA 02360 (800) 225-0385 x 1802

Newport News Industrial offers new products and services

As one of the nation's leading specialty service contractors, Newport News Industrial has provided services to more than half of the country's nuclear utilities as well as fossil fuel and hydroelectric plants, refineries, chemical plants, paper mills and the U.S. Navy. With nearly four decades of experience, NNI has honed its skills in maintenance and repair of valves, actuators,

pumps, turbines, coolers, and heat exchangers; boiler water circulating pump repair; and modification and repair of major piping systems and plant components. Now the company is expanding its portfolio to include chemical cleaning services and lead-free radiation shielding products that are not only effective, but environmentally and worker friendly.

Chemical Cleaning Services



NNI's new chemical cleaning service uses a line of non-toxic, biodegradable, industrial cleaning products, developed by Gotar Technologies, Inc., that gives its clients cleaning solutions that are efficient and safe.

How do they work? Unlike traditionally aggressive acid-based products or mechanical cleanings used to keep internal systems flowing smoothly, NNI uses products that are more effective, safe for employees, environmentally friendly, and beneficial to equipment longevity. NNI does not need to dismantle systems to apply the solution, which is manufactured in a liquid form or easily reformulated into foam, gel or semi-gel for vertical surfaces. Applied at ambient temperature, these intelligent products quickly and completely remove contaminants without damaging equipment, gaskets or seals. The non-toxic products are safer to handle and require less labor and equipment down time. Fifteen years of research have proven their effectiveness in a broad range of applications including metal, paper and petroleum production, and nuclear power plants, while being environmentally friendly and completely biodegradable.

GOTAR
Perfect Chemical Solutions
for a Perfect World

HotGuard™ Lead-Free Radiation Shielding Patent Pending

NNI has answered increasing public concern about health hazards associated with lead and the cost of its storage, treatment and disposal with its HotGuard™ Lead-Free Radiation Shielding.

Because HotGuard™ radiation shielding products are lead-free and non-hazardous, using them reduces disposal, handling, and storage costs. Suitable for long-term installations, the unique material can be ordered in sheets and easily cut to fit, and may be formulated to obtain the optimum balance of weight and shielding capabilities. HotGuard™ can be custom molded for specific applications, significantly reducing weight and size, and the savings that result from schedule, labor and dose reductions slash installation costs. The water-repellent material makes it easier to decontaminate, and it can be disposed of at an approved facility by incineration or burial if contaminated. For workers, it eliminates the annual training and medical exams that are required when using lead-shielding products.



1. HotGuard™ Custom Molded Shielding
2. HotGuard™ Resistance Temperature Detector (RTD) Collar
3. HotGuard™ Pipe Wrap
4. HotGuard™ Blankets

For more information please contact NNI's Manager of Marketing & Product Development Mike Marlow at 757-688-2990.

IT'S NOT HEART SURGERY...



...but you still need a specialist.

From routine maintenance to complex modifications, it takes a specialist to keep your mechanical systems and equipment at peak performance. Whether your plant requirements call for a site visit from one of our field service teams or sending your equipment to our fabrication and overhaul facility in Virginia, our specialists are on-call and ready to meet your needs. We have new and innovative solutions available for you, like our environmentally friendly chemical cleaning process and HotGuard™ lead-free radiation shielding products for a safer and more efficient approach to plant maintenance. So for a healthy plant, call NNI, the mechanical maintenance and modification specialist.

NEWPORT NEWS INDUSTRIAL CORPORATION

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NORTHROP GRUMMAN
Newport News

Thermo – A Powerhouse Supplier to the Nuclear Industry

Leading the world in high-tech instruments, Thermo Electron Corporation helps life science, laboratory, and industrial customers advance scientific knowledge, enable drug discovery, improve manufacturing processes, and protect people and the environment with instruments, scientific equipment, services, and software solutions. Based in Waltham, Massachusetts, Thermo Electron has revenues of more than \$2 billion, and employs approximately 11,000 people in 30 countries worldwide.

Thermo can help you with your instrumentation, application, and service needs. We have the solution and are the experts in the following areas:

Process Instruments:	Environmental Instruments:
<ul style="list-style-type: none"> • Neutron Flux Monitoring • Data Acquisition and Monitoring • Level and Density Measurement • Bulk Material Handling 	<ul style="list-style-type: none"> • Air Quality • Custom Radiation Shielding • Industrial Hygiene • Radiation Measurement & Protection • Water Analysis

Thermo's offerings and commitment to the energy market will provide power customers with easier access to application-specific solutions to further improve the safety, compliance and profitability of power generation, transmission and distribution processes. Thermo products and services help power

producers satisfy regulatory and safety requirements. They help customers achieve maximum efficiency and profitability to meet demand while generating low cost, clean and reliable power. Thermo's integrated solutions assist users to exceed their customers' demands while delivering peace of mind.

Thermo's capabilities in the nuclear power industry are extensive as noted on the process map (see Fig. 1). Thermo is committed to the nuclear industry with our long term support of our products. We provide service and offer replacement parts for obsolete products. Additionally, we continuously research and develop new state-of-the-art products with same form, fit, and function to help plants effortlessly upgrade to meet today's standards.

Visit www.thermo.com/power or email us at power@thermo.com to learn more about Thermo Electron Corporation and how its comprehensive services and integrated products can benefit you and your plant.

Today, Thermo's new unified business structure, offerings and commitment to the energy market will provide power customers with easier access to application-specific solutions to further improve the safety, compliance and profitability of power generation, transmission and distribution processes.

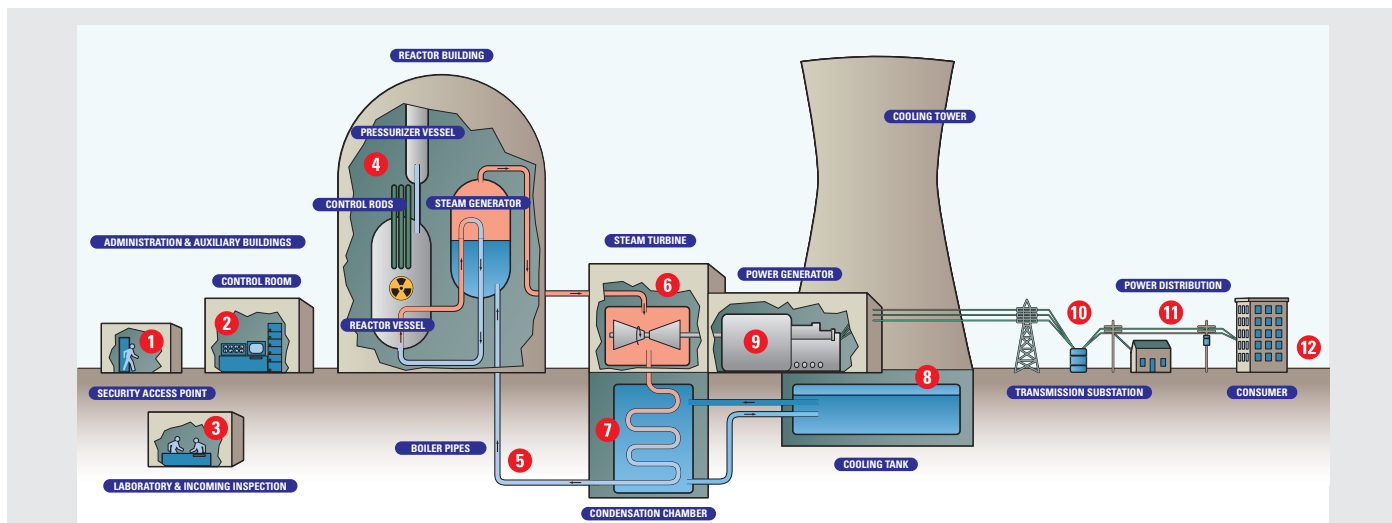


Fig 1: Thermo Electron Offerings for the Nuclear Power Generation Market

LEGEND KEY

- | | | |
|---|--|---|
| <p>1 SECURITY ACCESS POINT</p> <ul style="list-style-type: none"> - Radiation measurement and protection monitoring <p>2 CONTROL ROOM</p> <ul style="list-style-type: none"> - Radiation measurement and protection monitoring - Data acquisition, monitoring and management - Alarm monitoring - Neutron flux monitoring systems - Reactor protection systems - Audible count rate drawers - Boron dilution monitors - Bistable trip unit modules - Class IE qualified safety-related cabinets - Class IE qualified power supplies - LCD digital meters <p>3 LABORATORY AND INCOMING INSPECTION</p> <ul style="list-style-type: none"> - Radiation measurement and protection monitoring - Data acquisition, monitoring and management - Weld and alloy verification tools | <p>4 REACTOR BUILDING</p> <ul style="list-style-type: none"> - Radiation measurement and protection monitoring - Data acquisition, monitoring and management - Ex-core neutron flux detectors - Class IE safety-related post-accident qualified cable assemblies - Audible count rate during shutdown maintenance periods - Installed gamma area monitors - Boric acid storage monitoring - Water analysis monitoring <p>5 BOILER PIPES</p> <ul style="list-style-type: none"> - Cooling water and condensate flow measurement <p>6 STEAM TURBINE</p> <ul style="list-style-type: none"> - Radiation measurement and protection monitoring - Data acquisition, monitoring and management <p>7 CONDENSATION CHAMBER</p> <ul style="list-style-type: none"> - Radiation measurement and protection monitoring - Data acquisition, monitoring and management | <p>8 COOLING TANK, COOLING TOWER AND RESERVOIR</p> <ul style="list-style-type: none"> - Radiation measurement and protection monitoring - Data acquisition, monitoring and management - Influent and discharge flow measurement - On-line water analysis <p>9 POWER GENERATOR</p> <ul style="list-style-type: none"> - Radiation measurement and protection monitoring - Data acquisition, monitoring and management - Density meters <p>10 TRANSMISSION SUBSTATIONS</p> <ul style="list-style-type: none"> - Power quality monitoring and analysis <p>11 POWER DISTRIBUTION</p> <ul style="list-style-type: none"> - Data acquisition, monitoring and management - Power quality monitoring and analysis <p>12 CONSUMER</p> <ul style="list-style-type: none"> - Power quality monitoring and analysis |
|---|--|---|



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40 years from now, you'll still feel the love.

**Gamma-Metrics Neutron Flux Monitoring
Systems from Thermo stand the test of time.**



**Our Neutron Flux Monitoring
Systems are qualified for
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Analyze • Detect • Measure • Control™

Thermo
ELECTRON CORPORATION

It's no accident. Central Research Laboratories (CRL) has been the global leader in direct manipulation of nuclear materials for more than 50 years. How? By creating effective solutions to difficult problems in the absolute world of toxicity.

A little history

CRL of Red Wing, Minnesota has been designing, developing and manufacturing equipment and systems for the nuclear industry since the 1940s. Over the years, the company has accumulated more than 100 patents, and installed more than 8,000 units in 26 countries.

Extending a hand

CRL established its leadership presence in 1950 with a breakthrough telemanipulator design. Telemanipulators function as an extension of the human hand. CRL has 15 different models to manipulate hazardous materials in situations where direct contact isn't safe for people or for the environment, and when finger-like dexterity and feel ("force-feedback") are needed. Without telemanipulators, important activities ranging from nuclear waste cleanup to preparation of radiopharmaceuticals for medical procedures would be more difficult, costly, and dangerous.



It's no accident: Central Research is the leader

Touting the line

In addition to the telemanipulators, CRL's principal product line includes:

Double-Door Sealer Transfer System — Used for transferring items and materials in or out of sealed enclosures, allowing rapid and repeatable transfers without breaking containment of the enclosure or the transfer container.

Sealed Pass-Through Enclosure System — A means of providing a sealed penetration into an enclosed volume using a glove, window, bag, plug, or ball manipulator and maintaining the integrity of the enclosed volume during a replacement or transfer procedure.

Drum Transfer Systems — Bagging and bagless transfer of hazardous materials using industry-standard drums.

Service with a style

Products are important. No question. But so is service. CRL provides complete before- and after-sale service for all products, including:

- Engineering assistance to ensure proper layout, installation, and operation
- On-site installation support
- On-site field service (repair and maintenance) of all CRL equipment
- Factory repair and refurbishing
- Complete spare parts availability
- On-site or factory training on equipment maintenance and operation
- Technical support for the life of your equipment

Again, CRL didn't take the industry lead by accident. Rather, it has earned it every day for more than a half century by providing the best solutions to difficult problems in the absolute world of toxicity.

CENTRAL RESEARCH LABORATORIES

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PROTO-POWER: YOUR FULL SERVICE PARTNER

Since its founding in 1974, Proto-Power Corporation has provided engineering, design, and project management services to the power industry.

We offer exceptional breadth of resources with experienced mechanical, electrical, instrumentation and controls, and civil/structural engineering professionals and designers skilled in power plant systems and engineering analysis. Specialized expertise includes security system upgrades, equipment obsolescence solutions, containment sump strainers, and buried pipe refurbishment technologies.

Proto-Power focuses on:

- Plant performance problems investigations
- Code and regulatory requirements assessments
- Feasibility studies and conceptual design development
- Plant upgrade cost and effectiveness evaluations
- Plans and specifications for plant construction or modification.

Multi-disciplined capabilities and an uncompromising adherence to industry quality standards assure accurate analysis, comprehensive solutions and cost-effective implementation on projects of every size.

Our broad spectrum of nuclear power plant engineering services, system modeling and proprietary performance analysis software for nuclear plants are based upon a first-hand, in-depth knowledge of the industry, and of regulatory issues.

To meet the specific needs of the electric power industry for analyzing the performance of power plant systems and equipment, Proto-Power has developed its PROTO-FLO™, PROTO-HX™, and PROTO-HVAC™ thermal hydraulic system modeling software and PROTO-SPRINKLER™.

These powerful, PC-based programs provide extensive capabilities for modeling complex power plant piping, heat exchangers, HVAC systems, and fire protection systems in an easy-to-use, Microsoft® Windows®-based, graphical environment.

- PROTO-FLO™ calculates steady-state incompressible flows, pressures, and temperatures in piping systems with the capability to model pumps, valves, heat exchangers and other components typically found in power plant systems. A transient analysis module is also available to evaluate system transients with an existing PROTO-FLO™ database.
- PROTO-HX™ calculates temperatures and heat transfer rates through several types of heat exchangers, and can analyze and trend observed test data to predict heat exchanger performance under extrapolated conditions. Modules are available for shell and tube heat exchangers, air cooling coils, single cycle refrigeration chillers, condensing heat exchangers, and plate and frame heat exchangers.
- PROTO-HVAC™ calculates steady-state incompressible flows, pressures, and temperatures through control dampers, fans, and complex duct systems for system balance and performance.
- PROTO-SPRINKLER™ is a simple, powerful, and versatile design software tool that allows it to be used to model and evaluate fire sprinkler systems of any complexity. PROTO-SPRINKLER follows the standard methodology and approach for calculations as specified in NFPA 13, Standard for the Installation of Sprinkler Systems, and NFPA 15, Standard for Water Spray Fixed Systems for Fire Protection.

Proto-Power's Nuclear Quality Assurance Program complies with the Code of Federal Regulations (10CFR50, Appendix B) and ANSI. Our software is developed, validated and controlled under this program.

We welcome your inquiry. Please contact us at our headquarters in Groton, CT, or at our Midwest Regional Office in Naperville, IL, as shown in our ad.



It's all about commitment. To standards, quality and responsiveness. We understand the issues and pressures power companies face. That's why we've developed a full spectrum of power plant engineering services and performance analysis software to meet your challenges. Whether it's facility upgrades, engineering analysis to improve efficiency, addressing regulatory issues, or unique approaches to problem solving, choose a partner with a commitment as strong as yours.



..... ENGINEERING SERVICES TO THE POWER INDUSTRY



**Nuclear Underwater Equipment
SALES AND SERVICE**

The prestigious T.I.P. or "Top Industry Practice" award is the highest achievement award within the Nuclear Industry, and is presented for designs and ideas which make highly significant contributions to improve safety, performance, and dose reduction.

In 2003 R.O.V. Technologies, Inc. in conjunction with Exelon Nuclear received the T.I.P. award for its In-Vessel Mounted Robotic Camera System, which monitors all fuel movements and other In-Vessel activities and provides wireless pictures to the refuel bridge. Additionally, the system is used to perform real-time core verification while fuel moves are in progress as well as monitoring all work in the Rx Vessel. The system is called FAIS or Fuel Assembly Inspection System and is now integrated into the majority of BWR refueling outages performed in the United States.

This year R.O.V. Technologies, Inc. in conjunction with Exelon Nuclear and GE Energy received the T.I.P. award for a new system called the In-Vessel and Annulus Data Evaluation Robot, affectionately known as the "INVADER". The "INVADER" was designed to traverse along the Steam Dam of a BWR and deploy either of its two on board masts to any area of the BWR Vessel or Annulus up to the Feedwater Spargers or down to the Annulus Floor, including entry into the Jet Pumps. The operation is performed remotely while fuel moves are in process. All on-board cameras are capable of EVT-1 calibration, allowing for real time IVVI. The system is also capable of monitoring all work in the Rx Vessel. The on-board masts are unique in that they deploy from an approximate one square foot housing to a distance of more than twenty feet using three interlocking ribbons, which form a rigid triangular work platform. A customized end effector can be used to mount a variety of tooling including pan, tilt and zoom cameras, welding heads, grinding devices, etc. Because of its compact size when retracted the mast can be positioned into tightly restricted areas for deployment to partial or full lengths. This is accomplished through waterproofed drive mechanisms operated and viewed from a remote location.

In addition to ROV's award winning concepts and accomplishments, R.O.V. Technologies, Inc. has successfully overcome other Industry challenges with innovative designs over the past two years. To name a few:

- 1 Implementation of utility wide robotics programs to assist in achieving world class outage performance.
- 1 Fuel Assembly Tie Plate Crushing Device – Used to reduce radiation waste by sectioning fuel support assemblies and crushing the tie plate assemblies remotely. This concept dramatically reduced the volume of contaminated waste requiring burial.
- 1 Remote RX Vessel Head Inspection BMI / BMH – Performed using State of the Art Micro-Magnetic Crawlers with miniature pan, tilt and focus cameras.
- 1 Feedwater Sparger Inspection – Performed using specialized tooling which located on a Feedwater Nozzle from the Refuel Bridge and enabled a 100 ft long Borescope to be fed down through the device from the Refuel Bridge into the Feedwater Sparger allowing the scope to traverse in either direction the length of the Feedwater Sparger, discovering two missing Iso-Kinetic Probes.
- 1 Steam Generator Bowl Inspection Device – Used to remotely inspect steam generator hot and cold leg nozzle inner radius areas resulting in a ten fold reduction of personnel exposure from previous operations.
- 1 Established programs, provided procedures, and equipment for Spent Fuel Pool cleaning, inventories and verification of S.N.M.
- 1 Provided 24/7 emergency consultations, robotic equipment and remote tooling.

Among the items to be introduced early next year is an Inner and Outer Bellows Cleaning Crawler called the "Amphibian". This machine will be capable of remotely extracting sediment and sludge from the Reactor Cavity Inner and Outer Bellows areas, traveling between hatch covers. Once a hatch cover is encountered a docking station will lift the crawler over the hatch, propel the unit forward and lower it into position so it may proceed, The docking station is capable of carrying a 250lb load to any location within the vessel, spent fuel pool or dryer/separator pit. All operations, as usual, are performed from a remote, clean area location.

R.O.V. Technologies, Inc. is a Vermont based privately held "S" corporation owned and operated by career nuclear professionals.

A brochure is available upon request, which describes the full R.O.V. Technologies, Inc. nuclear equipment line, including a list of nuclear customers, contacts, telephone numbers and completed projects.

For more information contact R.O.V. Technologies, Inc. at Area Code 802 Telephone 254-9353 or E-mail at mail@rovtech.com

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24-hr technical support: 413-292-4772, 4773, or 815-979-0712
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Nuclear Underwater Equipment
SALES AND SERVICE

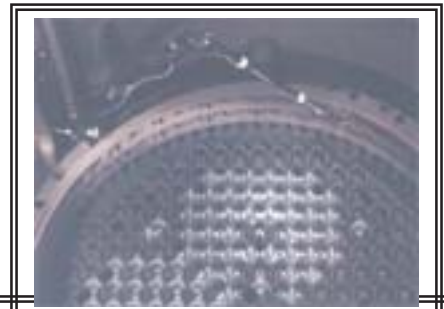
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Built to Work Tough”**

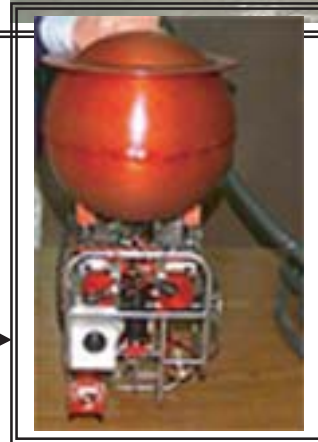
Since 1989 we have been designing, building, operating equipment, and providing service exclusively for the nuclear and space industries. Our goal, to reduce critical path time and save radiation dose exposure, has been realized with every new product from our line of Scarab crawlers, submersibles, radiation tolerant camera systems, our highly acclaimed Fuel Assembly Inspection System (FAIS) and scores of special purpose equipment to our newest innovation, the “INVADER” (In-Vessel and Annulus Data Evaluation Robot).

“INVADER”

FAIS →



SCARAB



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ESI's team of experienced technicians perform all types of repairs in strict compliance with OEM specifications utilizing factory rebuild procedures.

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**Worldwide Nuclear
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Test results data can be provided in concise, easy-to-read digital and/or graphical format, such as the FT-IR testing report and the seismic/vibration testing report.

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Engine Systems, Inc. has been providing commercial grade parts dedication services to the nuclear industry for more than 35 years. As a result of our experience and reputation for high quality, ESI has formed lasting relationships with the top engine manufacturers and suppliers to the nuclear industry.

Our philosophy is centered around customer service. We are able to provide difficult to find parts upgraded through our commercial grade parts dedication program to meet nuclear safety-related parts requirements - with the necessary certifications to meet the most stringent quality requirements. We dispatch technicians around the clock and around the world to bring you the most effective, efficient on-site repair service. With accurate troubleshooting, expert judgment, and our many years of experience, Engine Systems gives you *Quality Performance With Pride.*



Capabilities

- On-site Service
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- Factory Authorized Service Technicians
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- Engineering Services
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- Load Testing
- Seismic, Functional and Material Testing
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- NUPIC Audited
- 10CFR50 Appendix B
- 10CFR21
- ANSI N45.2
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Solutions For All Your Low-Level Radioactive Waste Project Requirements.

We have many proven solutions for radioactive material handling and transportation that will boost safety, enhance security and improve your bottom line. We're MHF Logistical Solutions, experts at providing transportation, packaging and technical service support for the nuclear industry. We offer state-of-the-art logistics management, the industry's most seasoned team of professionals, and the private high-capacity equipment and resources to get the job done. Our methods are simple: we work with clients one on one, delivering solutions that make sense and are done right.



Transportation

- Rail-Truck-Marine
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- Specialized high-capacity equipment lowers costs
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- Utah site access permits
- Large component engineering & disposition
- Rail feasibility infrastructure studies
- Transportation & work plan development

MHF Logistical Solutions stays abreast of transportation regulations, such as the new harmonization with IAEA standards. These changes may affect you our customers, more than they affect our own operations. Our Technical Services Group stands ready to help you assess the impact of the new regulations on your projects, and to create compliant solutions that keep your project on track.



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Our 177 ton high-capacity articulated flat railcar transports four containers



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Engineered Solutions for the Nuclear Industry

Since the company's inception over a decade ago, Nuclear Logistics Inc. (NLI) has excelled in servicing the nuclear industry, not only becoming the global leader of third party Class 1E supply, but also a contender for being the top provider of safety-related equipment maintenance. With a clientele that includes 90% of the U.S.'s nuclear plants as well as facilities in Canada, Mexico, Brazil, Taiwan, Korea, Slovenia and the former states of the Soviet Union, NLI's success is due to their priority of hiring the best people in the industry. Their engineers have encyclopedic knowledge of nuclear plant design, maintenance issues, equipment manufacturing and qualification experience. The technical personnel are trained to support the engineers with troubleshooting, reverse engineering, manufacturing and testing expertise. Additionally, NLI has developed long-term industry-related partnerships with well-known, established companies. This means that NLI is able to offer turn-key solutions to any challenge involved in nuclear power plant operations.

PRODUCTS AND SERVICES

NLI provides an incredibly extensive line of safety-related products, many of which are pre-qualified. Besides being an OEM and manufacturing in-house, NLI is also the authorized supplier of products from various companies, controlling configuration, design and manufacturing of each product.

NLI's host of products are complemented by an equally impressive list of services. Assisting clients with routine requests or custom orders, on-site or in-house, NLI's extensive industry experience allows them to update and upgrade any system within a nuclear power plant.

QUALITY ASSURANCE

NLI's belief is that a nuclear power plant is not the place to let any piece of equipment or service be just "good enough." That's why they developed a stringent Quality Assurance Program that has become the international standard. Emphasizing the need to check, double check, test and qualify each facility product, especially as they pertain to safety-related projects, every

requirement is met and surpassed. All NLI projects are subject to the QA Program, whether on-site, in-house, or at another facility. The company axiom is that each job is handled correctly, the first time, every time.

INDUSTRY EXPERTISE

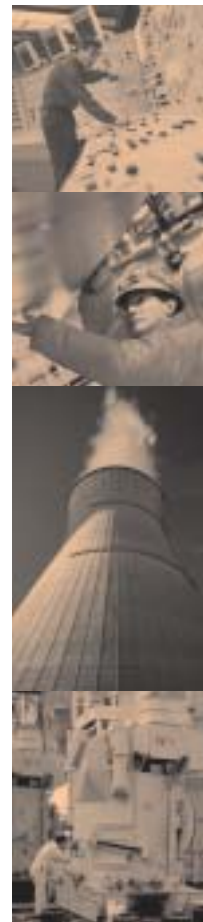
Whether it's obsolete equipment, reverse engineering, modification of "off-the-shelf" components, custom OEM, or digital upgrades, NLI's true area of expertise is safety-related application. Analysis of failure modes, identification of critical characteristics, testing and qualification — NLI is the source for safety-related equipment, equipment maintenance, and total engineered solutions.

The world depends on the nuclear industry; the nuclear industry can depend on

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NLI

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Dominion is traded under "D" on the New York Stock Exchange, and we are proud to have the confidence of more than 350,000 shareholders. We contribute more than \$6 million annually to health and human services, community development and the environment, and cultural and educational efforts in the states where we operate. Additionally, we practice environmental stewardship and conduct business in an environmentally responsible manner.

Dominion is one of the nation's largest producers of energy. Combined, our power and natural gas divisions can create enough energy to light the United States for a full hour. We're expanding to serve a potential market of more than 50 million homes and businesses in America's most energy-intensive region. Dominion's strategy is to be a leading provider of electricity, natural gas and related services to customers in the Midwest, Mid-Atlantic and Northeast regions of the U.S., where 40 percent of the nation's energy is consumed.

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Gamma Spectrometer

For over 40 years, ORTEC has been an industry leader in the design and manufacture of precision gamma-ray and alpha particle detectors, signal processing electronics, software, and systems for industry, and government requirements. The ORTEC product line of over 1600 products includes equipment and instruments for nuclear power plant and government nuclear facility operations, special nuclear material safeguards, search and identification of radioactive materials, and chemical weapons detection.

ORTEC's commitment to improve the products and systems for use in the nuclear measurement industries has resulted in the development of many new technologies and innovations. ORTEC has consistently been the first in the industry with a variety of new products and technologies for the nuclear market including the N-Type Ge Detector, a Spectroscopy Amplifier with Automatic Pole Zero, a LO-AX Ge Detector, Ge Detectors >140%, 170%, 180%, and now 200% efficiency, a Chemical Weapons Assay System (PINS), a Digital Gamma Spectroscopy System (DSPEC), and portable digital spectrometers for hand-held operation. Recent products released include the DSPEC jr desktop digital spectrometer, the digiDART field-portable integrated spectroscopy system – the first spectrometer of its kind for use in portable applications –, X-COOLER™ mechanical cooler for HPGe detectors, ISO-CART Mobile Assay System, Profile series detectors designed for specific applications, Safeguards and NDA systems, as well as many other turnkey nuclear measurement systems and high quality components. Systems are designed to provide capabilities for specific applications such as Failed Fuel Monitoring, Whole Body Counting, Air Monitoring, Liquid Effluent Monitoring, and Industrial Process Monitoring. Homeland Security applications are addressed with systems like the one-of-a-kind PINS Chemical Weapons Assay unit, digiDART-based radioactive material identification systems, and search/identification tools for illicit trafficking of nuclear materials.

The leader in PC-Based software for Nuclear Counting Laboratories. ORTEC leads the way in providing innovative PC-based software solutions to simplify counting laboratory operations, while maximizing performance for every aspect of site operations. For environmental counting laboratories, ORTEC features the industry-leading comprehensive gamma-ray analysis software GammaVision-32, high-production laboratory alpha spectrometry software AlphaVision-32, and ScintiVision-32 software for NaI applications. For Health Physics applications, ORTEC features Renaissance, a complete whole body counting and lung burden analysis package. In 2002, ORTEC added Global Value software, designed specifically for automating and customizing gamma spectroscopy analysis and reporting for Nuclear Power counting laboratories. Our offering also includes advanced systems for in-line continuous environmental monitoring and custom systems. ORTEC software products complete the solution for data acquisition, analysis, reporting, and data management for the Nuclear Power industry.

If you are looking to enhance the performance of your counting laboratory. . . you need ORTEC.

The X-COOLER is a patented technology that provides cost-effective mechanical cooling to replace liquid nitrogen in nuclear counting laboratories.



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Mechanical Cooler for HPGe Detectors

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For over 40 years, ORTEC has been an industry leader in the design and manufacture of precision gamma-ray and alpha particle detectors, signal processing electronics, software, and systems for industry, and government requirements.



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Mass Distraction or Mass Destruction



Positive Identification of Radioactive Materials with the ORTEC Detective

Everyone and almost everything is radioactive. Some are more radioactive than others. The threat of illicit nuclear materials trafficking is a real and present danger, but then so is hysteria. Picking out the “one in a million” real nuclear alarms and not creating false-alarm panic is a job for a nuclear Detective. And ORTEC has one. The only one. It will save your facility from hysteria, or worse.

From ORTEC, the Detective, the ONLY high resolution portable nuclide identifier.

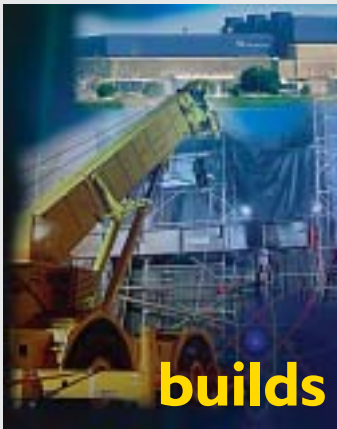


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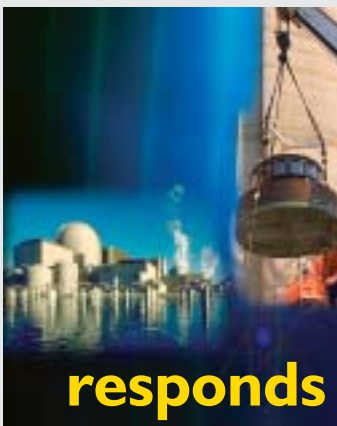
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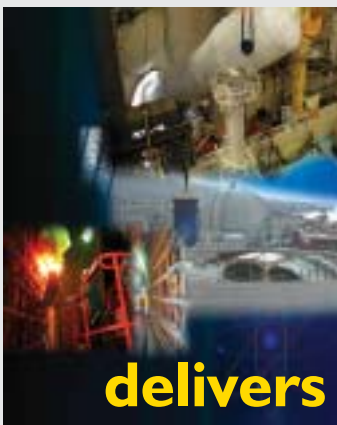
builds



responds



performs



delivers

Bechtel: The First Name in Nuclear Power

Bechtel has been a partner in the nuclear power industry for more than 50 years. With over 56,000 MW of nuclear design and construction and involvement on over 150 plants worldwide in our portfolio, our ability to meet complex challenges and develop the right solutions will ensure our customers' success in the 21st century. Bechtel provides an appropriate blend of experience, expertise, and technology. By teaming with our customers and aligning goals, we provide a management focus to consistently exceed customer expectations.

Nuclear Projects

Bechtel is the industry leader for successful large-scale nuclear projects. Current projects include new generation assessment, plant restart support and replacement of steam generators, reactor pressure vessel heads, and pressurizers. Bechtel's capabilities in executing nuclear projects include:

- Project management
- Engineering and licensing
- Procurement
- Construction management

New Generation

Bechtel's new nuclear generation activities include:

- Support for the development of the Westinghouse AP600/1000 Advanced Light Water Reactor and the GE Advanced Boiling Water Reactor
- Consortium leader for balance of plant design for Qinshan Units 4&5, a twin CANDU-6 reactor facility now operating in China
- Providing design certification and deployment support for AECL's Advanced CANDU reactor in the United States
- Assisting Westinghouse on the International Reactor Innovative & Secure reactor (IRIS)
- Assisting TVA and Toshiba to study the U.S. deployment of the ABWR
- Completing constructability and schedule studies of advanced reactor plant designs
- Ongoing evaluation of advanced engineering and construction techniques

Steam Generator Replacement & Major Component Replacement

Bechtel established the benchmark for SGR, having successfully completed 24 projects, with 6 additional projects under way. Our success in SGR is founded on close association with our customers, a safety-first focus and detailed planning, innovation, preparation, and execution. In 2003 we again re-set our world record for breaker-to-breaker schedule—and accomplished this with no lost-time accidents.

We continue to demonstrate why we are the world leader in helping international and domestic customers extend the operation lives of their nuclear fleet. We have successfully completed 7 reactor head replacements including the first in the U.S.—beating schedules and enabling the plants to get back online quickly—saving millions of dollars for our customers. Our careful planning is enabling other customers to include RPVH replacement with steam generator replacement. We are scheduled to perform the first pressurizer replacement in the U.S. in the next several years.

Nuclear Operating Plant Services

Bechtel responds to tough challenges. As a change leader, we are committed to helping our customers improve their business and work processes, with an ultimate goal of optimizing operating and maintenance costs. Worldwide, we've supported power uprate on over 35 units. Our operating nuclear plant services include:

- Engineering and design
- Field services and labor management
- Power uprate engineering
- Licensing and Regulatory Response Support (Nuclear Analysis, Alternate Source Term, PWR Sump Clogging, Environmental Assessment, etc.)
- Instrumentation and controls digital upgrades
- Plant security system upgrades



www.bechtel.com

Nuclear programs fuel Major Tool & Machine's growth

Our Past:

Since 1946, Major Tool and Machine, inc. has been supplying engineering, fabrication, machining, assembly and testing services for critical application environments. Our customer-focused philosophy, coupled with continuous reinvestment in our capabilities, facilities and employees, has enabled us to evolve with and respond to the needs of our customers. Major Tool's best value approach provides our customers with the highest quality, competitively priced, build-to-print services available.

Our Present:

Today, Major Tool provides unsurpassed levels of capability and quality assurance. With nearly 300,000 sq. ft. of environmentally-controlled space under roof, Major Tool offers extraordinary capacity. Our continuous reinvestment in capital equipment allows us to provide prototype through production forming, welding, machining, assembly and testing services to meet the wide range of application specific shape, size and configuration hardware required by our customers.

Our success in executing this full-service capability has allowed Major Tool to successfully participate in many critical government, industry and academia fission and fusion programs. In fact, Major Tool has received the U.S. Department of Energy Oak Ridge National Laboratory 2003 Small Business of the Year award for our work on the Spallation Neutron Source.

Our extraordinary capability, capacity, and experience are driven by our commitment to quality assurance. Major Tool maintains ASME N, NPT, N3, U and U2 certifications. Our Quality Assurance system is audited to NQA-1, and is 10CFR50, 10CFR71, and 10CFR72 compliant.

Your Future:

It is bright on the nuclear energy horizon. Major Tool is committed to our future, your future and the future of our generations by championing the growth of nuclear energy and the safe, successful disposal of radioactive waste.

We are well positioned to usher in the nuclear renaissance, and we will apply all our resources and knowledge to provide our customers the quality critical hardware to meet tomorrow's demanding nuclear requirements.

Nuclear power plant upgrades, next generation power plants, naval nuclear propulsion, radwaste transportation and disposal casks, canisters and tooling, fuel fabrication, magnetic and inertial fusion research, and government, industry and academia supported energy sciences initiatives are all areas where Major Tool applies our hardware manufacturing expertise.

We look forward to the bright future that nuclear energy provides us all.

For more detailed information or to schedule a visit to Major Tool and Machine, contact Joel Manship at (317) 917-2619 or by email at jmanship@majortool.com.



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MTM's Quality Assurance Program is compliant to NQA-1, 10CFR50 Appendix B, 10CFR71 Subpart H, 10CFR72 Subpart G



NFS is proving that downblending is the smart alternative.

Whether its converting nuclear weapons material for commercial power, medical research or final disposition, Nuclear Fuel Services, Inc. (NFS) is proving the value of downblending as a smart alternative to storage or disposal.

"The price for feed material has strengthened in the last year and downblended material helps moderate supply and demand pressures," explained NFS Vice-President of Business Development Frank Hahne. "U.S. policy is to maintain a domestic supply of uranium materials and the downblending of existing stockpiles into marketable feed products is another reason why NFS is the smart alternative, especially when imported feed materials aren't meeting domestic needs."

"NFS is a pioneer in nuclear recycling. Through downblending, we are helping solve the Cold War dilemma of what to do with tons of surplus enriched uranium. The overall savings through downblending, when compared to storage or disposal, is significant."

Dwight B. Ferguson
NFS Chief Executive Officer

NFS is a pioneer in downblending technologies. Operating one of only two privately owned Category 1 NRC-licensed facilities in America, NFS began the practice of downblending enriched uranium

for the commercial fuel cycle in the 1990s. Today, the scope and volume of downblending projects have grown significantly.

In 2004, NFS began downblending operations in a new facility to serve a major utility's downblended uranium project. NFS, and its partners in the project, will convert metric ton quantities of surplus enriched uranium into low enriched uranium oxide powder. The oxide powder will be fabricated into pellets and fuel assemblies for use by the utility in its commercial power reactors. The utility estimates the project will provide 15 years worth of nuclear fuel for two of its reactors and will save U.S. taxpayers more than \$500 million dollars in storage and disposal costs.

At another site, NFS and several partners formed an independent company to manage the operations of another important downblending project. The project goal is to separate thorium-229 from a large quantity of uranium-233, then render the uranium as non-weapons usable through downblending. The thorium will be used to extract actinium-225 and supply its daughter product, bismuth-213 for ongoing cancer research.

The final product will be used in Phase II clinical trials for the treatment of acute myelogenous leukemia. These isotopes are also being explored for treatment of other serious cancers of the lungs, pancreas and kidneys. For the government, the project represents a solution for disposition of the material, some of which has been stored since World War II's Manhattan Project.

"NFS is a pioneer in nuclear recycling. Through downblending, we are helping solve the Cold War dilemma of what to do with tons of surplus enriched uranium. The overall savings through downblending, when compared to storage or disposal, is significant," said NFS Chief Executive Officer Dwight B. Ferguson.



NFS is a pioneer in developing downblending technologies for a variety of enriched uranium materials.

NFS is proving that downblending is also the smart alternative for a variety of other enriched orphan materials inside and outside the DOE Complex. Numerous beaker and bench-scale tests on a variety of dry and liquid uranium contaminated with organics have proven that NFS downblending can successfully convert the material into either usable fuel cycle materials or into materials which meet lower-cost disposal criteria.

NFS
NUCLEAR FUEL SERVICES, INC.

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or visit www.nuclearfuelservices.com.

Boundless *innovation.*
Proven *expertise.*



Specialty Thorium
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Manufacturing



Plutonium Oxide
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Advanced
Fuels Research
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HEU-to-LEU
Conversion



U-233 processing
for new cancer drugs

A new age in nuclear energy has emerged, yet one name remains as a pioneer in fuel research, development and manufacturing. A 46 year heritage that saw Nuclear Fuel Services, Inc. involved in many key milestones in America's nuclear age makes it the smart choice for tomorrow's next advancement in nuclear power. Learn how NFS is helping America address its energy future. Call 423.743.1789 or visit us at www.nuclearfuelservices.com.



The Smart Alternative

Pump and Motor Services

AREVA's New Service Center Helps Plants Get a Grip on Equipment Reliability and Performance

Like many other components in nuclear power plants, pumps and motors are beginning to show their age. As a result, the demand for pump and motor repairs, refurbishment and/or replacement has dramatically increased.

To meet this need, AREVA, working through its joint subsidiary with Siemens, Framatome ANP, has just completed a 70,000-square-foot pump and motor service center at its Lynchburg, Va., facility. Designed with the latest technology, including a 30,000-square-foot hot machine shop with 12-ton and 25-ton cranes, and a 75-ton crane with a 40-foot hook height, the center's dedicated, experienced team, can now inspect, repair and refurbish primary and auxiliary pumps, motors, and seals either on or off a customer's site.

"The center's design is based on Framatome ANP's extensive experience in refurbishing and servicing pumps and motors," said Buddy Jolley, Manager of the Pump and Motor Service Center. "This world-class center offers Framatome ANP's customers greater reliability and increased performance for the long-term operation of their pumps, auxiliary pumps, motors and seals."

In addition to equipment service and repair, the company manufactures pumps and motors at its Jeumont, France facility. As a previous Westinghouse licensee for over 20 years, Jeumont is the OEM supplier of over 220 reactor coolant pumps and motors. To enhance its already extensive capabilities, the company recently signed teaming agreements with Sulzer (OEM for Sulzer & Bingham pumps and a leading provider of parts for most other brands of auxiliary pumps) and Siemens (OEM for Allis Chalmers and Siemens-Allis motors).

State-of-the-Art Facility Meets Customers' Needs

Framatome ANP reviewed all makes and models before ordering equipment to enable the center to handle a wide variety of motors and pumps. As a result, the center features a 50,000-pound balance machine and a drying oven for stripping, baking and drying motor components that is one of the largest in the industry. The 20-foot lathe with a 78-inch swing will handle the largest stators as well as smaller parts. A specially-designed contamination booth with both washing and drying capability and a full-scale motor test area are also included in the facility. In addition,



"The state-of-the-art facility will enable the company to change the performance and life expectancy of the installed pumps and motors."

assembled motors, and a special truck bay with negative pressure was constructed to reduce contamination. The facility also includes in its radiologically controlled area a full-scale, flooded reactor vessel mock-up to support RV non-destructive examination processes.

This new Pump and Motor Service Center has the most up-to-date equipment for performing complete motor refurbishments as well as detailed mechanical and electrical inspections, non-destructive examinations and balancing and vibration analyses. Combined with a dedicated team of service professionals, the Pump and Motor Service Center delivers the most cost-effective solutions for:

- Contaminated & Safety-Related Motor Refurbishment
- Motor Stator & Rotor Testing and Repair
- RC Pump Refurbishment and Repairs
- Auxiliary Pump and Motor Refurbishment and Repair
- Extensive Decontamination Capabilities
- Contaminated Dynamic Balance Capability
- Complete Hot Machine Shop Capability

Worldwide Experience with All Pump and Motor Models

Framatome ANP services pumps and motors for all makes of reactors: PWRs, BWRs, PHWRs, VVERs, FBRs and next-generation reactors. The company's experience includes Byron-Jackson reactor coolant pumps (RCP), Westinghouse RCPs and motors, Bingham RCPs and Allis-Chalmers and GE motors. To further round out its service capabilities, the

company draws on its Nuclear Parts Center, also located in Lynchburg, Va., for new seals, remanufactured seals and seal parts to replace original parts. The company has serviced more than 50 pump and motor projects in the U.S. alone and performed over 40 primary pump replacements and inspections. This is in addition to the more than 200 pump and motor projects the company has performed worldwide, as well as hundreds of inspections on primary motors and hydraulic components and over 25 vibration analysis/diagnostic/balance service contracts, in just the last six years.

Using the company's database of worldwide pump and motor performance data enables early diagnosis of problems – often before they *are* problems – and provides additional important information relevant to effective materials management.

The combination of Framatome ANP's engineering, product knowledge and resources, and a state-of-the-art facility will enable the company to change the performance and life expectancy of installed pumps and motors. This in turn, will increase customer's competitiveness and profitability. Refurbished pumps and motors are routinely returned to the customer with better performance and higher efficiency than the original, extending their functional life and reducing customers' capital requirements.

For more information, contact Matt Hernandez at (434) 832-2408.

KEY QUESTION FOR THE FUTURE

How can we respond **to the great energy issues of the 21st century?**



Uranium mining



Nuclear fuel manufacturing



Reactor design and construction



Services and engineering



Electricity transmission



Electricity distribution

The world needs energy.

AREVA develops solutions to produce, transmit and distribute it.

With manufacturing facilities in over 40 countries and a sales network in over 100, AREVA offers customers technological solutions for nuclear power generation and electricity transmission and distribution. The group also provides interconnect systems to the telecommunications, computer and automotive markets.

These businesses engage AREVA's 70,000 employees in the 21st century's greatest challenges: making energy and communication resources available to all, protecting the planet, and acting responsibly towards future generations. www.areva.com

AREVA



Draka Comteq

Manufacturer of Chromatic Technologies and Helix/HiTemp cable products

INTEGRATED CABLE SOLUTIONS FOR THE REEL WORLD

Draka Comteq USA, Inc. (www.drakausa.com) taps into the Draka family's worldwide resources to ensure high-quality fiber and copper cable products — from off-the-shelf, high-volume standard products supporting the latest industry standards, to customized designs for unique and harsh environments. Draka Comteq USA, Inc., (formerly Helix/HiTemp Cables and Chromatic Technologies) is part of the global Draka Comteq communications alliance through Draka Holding, N.V.

Cables for the Nuclear Plant and Harsh Environments

Draka Comteq USA, Inc., is the only commercial cable manufacturer to meet the stringent quality requirements of 10CFR50 Appendix B to provide both copper and fiber optic cables for communication links, data networks, video

broadcasting, and emergency system repairs within nuclear power plants. For many years Chromatic Technologies has been the premier manufacturer of ruggedized fiber optic cables produced under the Nuclear Regulatory Commission guidelines. Through a recent plant consolidation program, copper and fiber optic cables are produced under the same roof under Draka's long-standing stringent quality program which enables them to provide copper twisted pair communications cables in addition to coaxial and fiber optic products that meet the 10CFR50 Appendix B requirements.

"Cables produced for nuclear plants are designed to meet certain requirements of the IEEE-383, the standard for cabling in nuclear facilities," notes Rob Gilberti, Director of Marketing, fiber optic products, Draka Comteq USA, Inc. "This includes full compliance to flame and radiation tests to insure the highest level of performance under all conditions, whether for utility, military or commercial applications," he adds.

"The 10CFR50 Appendix B, which is dictated by government regulations, provides specific quality assurance procedures, similar to an ISO9000 program," states Linda Desmarais, Director of Quality Assurance for Draka Comteq USA, Inc. "Through this program we are

required to keep raw material traceability records as well as dual records in separate locations of all procedures," she explains. "In addition, all cable products produced for nuclear applications must be kept separated from the manufacturing of other cable products, including a dedicated quality control department," Desmarais adds.

Exclusive Cable Distribution

CableLAN Products, Inc., headquartered in Norfolk, MA (www.cablelan.com), a major supplier of premises wiring products, has been named as the exclusive distributor of Draka Comteq USA, Inc. communications cables for nuclear power plants.

"As chairman of a standards group, we produced the IEEE 383 standard that governs the unique cable properties and specifications," states Pirrong. "This experience in the cables' qualification process, coupled with Draka Comteq USA's cable design and manufacturing expertise, gives our customers an unmatched offering for this market," states Jan Pirrong, president of CableLAN Products.

Expanding Cable Capabilities

The breadth of the Draka Comteq product line touches all industries that utilize cable for communications, as well as for power and signaling. In addition to the nuclear cables, a complete portfolio of copper and fiber optic cable products are produced for specialty markets such as transit, military, shipboard/ShipLAN, broadcast, industrial/automation, commercial marine, electronic/OEM, medical, and security.

At any given time up to 500 items of raw materials, from bare copper and fiber to empty reels, are maintained within the 165,000-square-foot facility. All materials and cabling products manufactured in our ISO9001 Certified Massachusetts plant are meticulously monitored during all manufacturing processes. Additionally, all finished products are tested prior to shipment to ensure that all specific customer and industry standards are attained.

Through the Draka Comteq alliance, any Chromatic Technologies cable can be produced with 50 micron 10 Gb/s fiber for the next generation of multimode applications.

Draka Comteq USA, Inc.
20 Forge Park
Franklin, MA 02038

Tel: 508/541-7100
Toll Free: 888/541-7100
FAX: 508/541-8122
www.drakausa.com
www.drakacomteq.com



Draka Comteq

COMMUNICATION CABLES FOR NUCLEAR POWER



Draka Comteq USA, Inc., manufactures ruggedized fiber optic and copper cables ideally suited in nuclear power plants for communication links, data networks, video and emergency systems. The fiber optic cables are:

- *Lightweight, durable, tight buffer construction*
- *Radiation resistant communication grade fiber*
- *Fully compliant to nuclear quality assurance specifications, including 10CFR50 Appendix B*
- *Meets IEEE-383*
- *Completely halogen free*
- *Category UTP/STP and coaxial cables available*

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EXPRESS SUPPLIERS OF THE PRODUCTS

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NORFOLK, MA 02056
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Analytics: Our Universe is Calibration

ANALYTICS, INC. manufactures and sells the world's highest quality custom-made radionuclide calibration standards. For over two decades Analytics has successfully participated in measurement assurance programs with NIST. The combination of the NIST intercomparisons and the strictest quality assurance program in the industry assure the quality and traceability of Analytics' standards. The sole focus at Analytics is the preparation of quality calibration standards and calibration related products such as interlaboratory cross check programs. At Analytics we say 'Our Universe is Calibration.' What does that mean to our customers? It means that our exclusive focus on calibration products and our extensive experience assure the customer of the highest quality product available on the market.

Analytics' standards include custom-made mixed gamma ray standards (water equivalent solids,

filters, planchettes, charcoal cartridges, sand, soil and vegetation), simulated gas standards, mixed and single radionuclide gas standards, mixed and single radionuclide liquid standards, electroplated alpha standards, and quenched standard sets for liquid scintillation counting — all custom-made to your specifications.

All standards must pass our strict quality control tests. Custom geometry solid and liquid standards are prepared gravimetrically from NIST traceable master solutions, counted after preparation and the data compared to other standards in our *exclusive proprietary database* of over 30,000 individual standards in over 1,500 geometries collected during our two decades of preparation of custom-made standards.

We also specialize in providing custom radiochemistry cross check programs for nuclear plant

laboratories and environmental measurement laboratories (as recommended by nuclear regulatory agencies and environmental protection agencies worldwide). Our 18 years experience in providing radiochemistry cross check programs and our extensive database from standard preparation assure the customer of the quality of the intercomparisons.

Our customer base is truly global, representing the United States and more than 25 other countries. Our main customers include nuclear power plants, nuclear regulatory agencies, environmental protection agencies, national laboratories, medical facilities, radiopharmaceutical companies, research institutions, and the armed forces.

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Obsolescence — The Nuclear Disease of the Decade!

The disease of the decade within the nuclear industry is OBSOLESCENCE. Manufacturers going out of business and others dropping their "N" stamps have led to a problem for finding the parts necessary for the routine maintenance and upkeep of a nuclear plant. An enterprising Mississippi company has turned this malady into an opportunity to forge a niche within the highly regulated industry.

History

Incorporated in 1979 Divesco initially began as an electrical surplus company. As the nuclear industry experienced cancellation of plants a large quantity of nuclear parts and components were put on the market. The company recognized an opportunity and began to purchase some of the unused equipment and store it in their warehouse in Jackson, Mississippi.

To function within the highly regulated industry, Divesco developed a Nuclear Quality Assurance Program, which has been NUPIC audited and approved. Items purchased are received, stored, and handled under the controls of this QA program with continued traceability.

Over the past twenty years Divesco has evolved as one of the industry's largest stocking distributors of nuclear parts and components found worldwide. Owners Tom Westbrook and Kay Fisher have dedicated themselves to the safe keeping of nuclear grade parts and components, many of which are obsolete in today's market.

Utility Relationship

An unusual relationship has developed between Divesco and the industry that it serves. Nuclear plants trying to reduce inventories are Divesco's primary suppliers. Nuclear plants in need of a part or component are Divesco's primary customers. And nuclear plants selling to each other are Divesco's primary competitors.

Expediting

From nuts and bolts to main steam isolation valves Divesco will get the job done faster than anyone. "Priority One" expediting service is provided when time is a critical factor. When an item is located elsewhere Divesco will expedite the purchase for the utility in need.

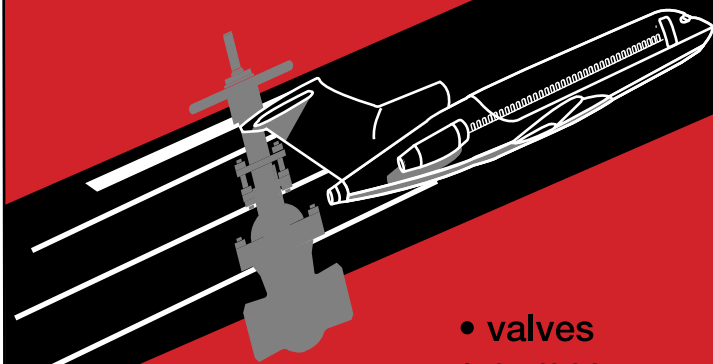
One utility's day was saved when an emergency call was placed to Divesco at 2:00 am. The plant was shut down due to problems with the reactor water cleanup pump. The parts needed were available, a plane was chartered, and the plant had the parts hand delivered before sun-up!

Obsolescence Resolution

Can Divesco solve all of the industry problems related to obsolescence? Unfortunately, no. But when an urgent need arises for a part or component that is not available from the manufacturer within acceptable lead times, if the item is in Divesco's stock then it can be the miracle cure for today's ailment.

Doctor DIVESCO to the rescue!

"When you need
it now, you need
DIVESCO."



- valves
- pumps
- relays
- crd's
- meters
- switches
- power supplies
- and more



NUCLEAR SPARES
601.932.1934
601.932.5698 (FAX)
divesco@divesco.com

**Storage and
control per
Appendix B
QA Program**

Communications and Information Management

"Immediacy" is the magic word in crisis management technology. Every millisecond counts in protecting lives and property. Information has to be clear and concise. Personnel need to operate flawlessly.

For over a dozen years, Forum Communications International has provided the best value and unparalleled reliability in instant conferencing and audio conferencing hardware. Their recent release, the Confer A.L.E.R.T. (Advanced Localized Emergency Response Teleconferencing) System, is a formfit replacement for out-dated primary and secondary crash systems from the 1980's. The A.L.E.R.T. system provides immediate ring-down to multiple locations (up to 5 miles away) and connects all participants into an "instant" conference call for response management and command/control applications.

The Confer A.L.E.R.T. is designed to replace the old Tellabs 291/292 red phone systems utilized in many regional utilities, local 911 centers and federal agency locations. With the latest in DSP technology and superior sound quality, the A.L.E.R.T. provides touch screen initiation, connecting to multiple ring-down circuits for instant fail-safe communication. The control screen provides real-time line status from the remote locations. Forum's technology eliminates ring down noises that create problems in other crash systems.

Already in use for many critical applications, the A.L.E.R.T. system exceeds Air Force technical requirements AFI 12-203 and AFI 13-213. Expandable to 72 ports, the Confer A.L.E.R.T. provides three levels of redundancy:

Blast from back up phone - Upon realizing the main phone is not working properly, command personnel go to the backup phone, dial *67 *21 and initiate an emergency call.

Blast from GUI screen: Upon realizing the main (or back up) phone is not working properly, "call initiator" can touch the "Manual Blast" button on the GUI and initiate the call.

Auto Reset status: In the event the GUI connection is lost, the A.L.E.R.T. system will "re-arm" itself automatically within two minutes to blast all and be ready for either the main or backup phone to initiate the call.

The Confer ECS (Emergency Collaboration System) is also designed for immediate communications and can connect to analog ports from your PBX or PSTN. The ECS allows your dispatcher to initiate dial-out from a GUI screen or by going off hook with (or dialing into) a command phone. Unique to the industry, the ECS can be programmed for global crash blast, to im-

mediately free up conference ports in an emergency. The crash blast mode can be set for multiple call groups and multiple response teams. Like all Forum systems, the ECS is durable and easy to manage. With flexibility of hosting both standard calls and emergency conferencing, the Confer ECS is easy to cost justify.

For an enterprise solution, the Forum flagship, the Consortium Conference System provides dynamic port allocation, programmable e-mail, reporting and blast dial functions with a full menu of conference management functions to support both business and "instant" conference

calls. All Forum systems can be demonstrated remotely. You can contact Forum Communications (972-680-0700) to schedule an executive briefing for your response management team or www.forum-com.com.

ABOUT FORUM

Founded in May 1991 by Dr. T. Raj Natarajan and Gayne Ek, Forum is the leading provider of audio conference bridges for business, government, education and public service. Visit their web site at www.forum-com.com or call 972-680-0700.

WHEN THE GOING GETS TOUGH,



THE TOUGH KEEP GOING.

Successful crisis management demands reliable, instant communication in extreme circumstances.

The most essential component of your response plan is your Forum Communications Conference Solution.



The award-winning **Confer ECS** with "crash blast" instantly dials and connects multiple response teams.

The **Confer ALERT** provides immediate, localized, failsafe conferencing with touch control and real-time line status.

The powerful **Consortium** provides instant conferencing with blast dial and blast e-mail, text messaging, real-time reporting and recording.

The Confer and Consortium from Forum — mission-critical conferencing for life's most critical missions.

Find your Forum. Contact us today to learn more about managing your crucial calls.

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ACR-700™

SETTING THE STANDARD



Two CANDU 6 units at Qinshan, China

For more than four decades, CANDU® plants have operated safely around the world. Constructed on a firm price, turnkey delivery model, the ACR-700 sets the standard for the newest generation of nuclear power plants for constructability, operability, maintainability and economics.

"When AECL launched the ACR-700 design, the objective was clear," says Dr. David Torgerson, AECL's Senior Vice President of Technologies. "Customers told us to reduce costs to be competitive with natural gas and other generating sources while building on the unique safety and operational advantages of the CANDU design." In response, AECL reduced the size of the reactor core, went to light water coolant, introduced a state-of-the-art control room, and fully capitalized on construction innovations to minimize project schedules. Hallmark characteristics of CANDU plants such as on power fueling, automated reactor control systems, and dual independent shutdown systems remain. "The results paid off with a 40% reduction in capital costs," says Torgerson. "We have always believed that CANDU plants were the best in the world, and with the ACR-700, we are even better. We are very proud of what we've accomplished."

In an industry not known for completing plants on time and on budget, AECL has been the exception. AECL has built their last six projects – in China, South Korea and Romania - on or ahead of schedule and on budget.

AECL's latest project – two CANDU 6 units at Qinshan, China – astounded the industry by coming in four months ahead of schedule. "Project management is vital to our success and we have the best project management team in the industry," says Dr. Ken Petrunik, Vice President of Projects at AECL. The first Qinshan unit, built in 54 months from the first concrete to in-service was the fastest nuclear power plant ever built in China. "We've always had great working relations with our customers and business partners," says Petrunik. "It's all about teamwork."

A closer look at AECL's success reveals the importance of modular construction techniques. For Qinshan, modules fabricated off site were shipped to site when needed, lifted into position through the top of the reactor building with a heavy lift crane and lowered into place. Together, the use of modularization and open top construction techniques significantly reduced the number of workers on site, allowed better parallel sequencing of activities, improved workflow, reduced the project schedule and improved quality. The approach has worked so well that AECL has designed the ACR-700 to take full advantage of this technique – over 350 modules will be integrated into each ACR-700 unit. As a result, the first ACR-700 construction project is expected to take 48 months from first concrete to in-service – a six month improvement over the Qinshan project. The construction period for later units is expected to be only 36 months.

The lower costs and shorter construction period are only part of the ACR-700 story. Unlike other reactor designs that have to shut down every 18 months to refuel, the operating cycle for the ACR-700 will be three years with a 21 day maintenance outage. Maintenance work can also be

performed while at power. The result is lower operating and maintenance costs. "We've been able to lower O&M costs by designing for reliability fully leveraging the benefits of on power fueling. With the ACR-700, the owner has full control over when they schedule and execute maintenance outages," says Dr. Torgerson. "And, should there be a fuel defect, the defective fuel bundle is simply shuffled out of the core and replaced with a fresh bundle."

From his Gaithersburg, Maryland office John Polcyn, President of AECL Technologies, says many U.S. customers have embraced the ACR-700. "They see the technical and economic advantages, but perhaps more importantly, our history of building nuclear power plants gives us the confidence to offer our customers

ACR-700
- constructed
on a firm price,
fixed schedule
basis.

a firm price, fixed schedule. We are the only company willing to stand behind our product in this way."

Customers will not have to wait long. The ACR-700 will soon complete the pre-

application stage of Design Certification with the U.S. Nuclear Regulatory Commission. The ACR-700 has also been selected by Dominion Resources for their COL Project that has been submitted to the US Department of Energy as part of the NP2010 program. "Our customers have set the bar high wanting a state-of-the-art safe design plant that is based on proven technology, is economic to build, economic to operate and maintain, and presents them minimal risk," says Polcyn. "We have delivered on that, plus much more."

CANDU®, Advanced CANDU Reactor™ and ACR-700™ are registered trademarks or trademarks of Atomic Energy of Canada Limited (AECL).

AECL
TECHNOLOGIES INC.

All Aboard with AECL Technologies Inc.

The train is leaving the station and we have taken the lead.

Success depends on outstanding performance. AECL Technologies is on board working with our customers to deliver just that with the ACR-700®.

The ACR-700 is an achievement of over five decades of experience and success. We have combined the best of CANDU® and LWR technology – making the ACR-700 a renaissance through innovation.

Designed to meet the challenging needs of owners and operators, the capital cost for an ACR-700 is competitive with alternative power generating sources and, the construction time is short.

AECL Technologies also provides an extensive array of customized and standard products and services based on more than half a century of design, engineering and research experience.

Phone: 301-417-2611
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www.aecltechnologies.com

 **AECL**
TECHNOLOGIES INC.

Get on track with
a winning team;

AECL Technologies Inc.

Alaron Corporation

A Nuclear Services Company

Alaron is proud to be teamed with the companies listed below. The following is a brief description of our teaming partners and the services that they offer to the nuclear industry.



Electric Motor & Contracting Co., Inc.

Electric Motor & Contracting Co.

and Alaron Corporation have expanded our capabilities for handling large motors. The expansion now allows us to offer complete refurbishment and rewind for PWR Reactor Coolant Pump Motors as well as BWR Main Recirculation Pump Motors. The equipment upgrades include: Large motor test stand and panel (15Kv), Burnout/Bakeout oven, 35,000 lb. capacity Balance machine. EMC has added an experienced full time staff at Alaron's facility to provide services on these large motors as well as other motors requiring "hot shop" services.

Along with the full scope of in-shop Reactor Coolant Pump Motor services, the Alaron/EMC team offers complete repair and rewind services for the balance of plant motors. This includes Safety Related, clean or contaminated, Motors. A harsh environment rewind program will soon be available on MOV's and form wound motors.



Chase Environmental Group and Alaron Corporation

maintain a teaming agreement for the recovery, recycle or disposal of sealed radioactive sources. The Alaron license and hot cell equipped facility allow for maximum flexibility in the safe handling of sealed sources over a large activity and nuclide spectrum. We offer turn-key service from collection through to delivery and eventual disposal.

New for Chase/Alaron this year is a volume reduction service dedicated to the economical disposal of compactible radioactive waste. Chase has installed a 400,000 pound-force supercompactor at Alaron and compacts 55-gallon steel waste drums into pucks with an average density of approximately 90 lbs/ft³. Waste is disposed of at licensed "near surface" disposal facilities.

Chase also conducts full-scale environmental remediation and decommissioning services for both radiological and chemically contaminated facilities. Chase maintains the staff and equipment necessary to conduct field operations on both large and small scales. Chase conducts all remediation activities in accordance with the latest regulatory protocols and using the latest available technology. The partnership with Alaron in this arena provides an outlet for the processing and disposal of waste generated from remediation activities. Contact: John O'Neil 865-584-0833 www.chaseenv.com



**SOUTHERN
PINES
TRUCKING**

TRANSPORTATION SPECIALISTS

Southern Pines Trucking provides safe & secure, personalized transportation services throughout the nuclear industry. Our 'Transportation Specialists' are professionals with experience transporting Low-Level Radioactive Materials (LSA, SCO, and Limited Quantity) and LLW (DAW).

(Southern Pines Trucking - continued)

We aspire to develop relationships and help to develop solutions to overcome your obstacles. In addition to being a customer-oriented trucking company capable of servicing your transportation needs, we are a minority-owned company certified by the NMSDC. For more information visit our web site at www.spinestrucking.com or call Warren E. Baugh 1-800-377-1049.



The **NES Products Group of SCIENTECH** is pleased to announce that it has teamed with Alaron to offer Control Rod Drive (CRD) Offsite Rebuild and Leak Rate Test Services to the BWR Nuclear Plant Industry.

After years of providing BWRs with high quality CRD maintenance equipment and services (including on-site rebuild and leak rate testing), we are pleased to offer these as offsite services. Combining the experience and knowledge of NES personnel with the facilities and experience of Alaron, in matters of dealing with radioactive contamination, radwaste and transportation, we will provide a superior alternative to OEM supplied services. Contact: Mark Wachowski 864-801-9770.



MHF LOGISTICAL SOLUTIONS

The **MHF Logistical Solutions** and Alaron Corporation Partnership offers our clients an integrated waste management approach for a wide range of environmental challenges. The Partnership brings over 100 years of waste management experience to the radioactive waste industry. We currently provide waste processing, waste package selection, waste consolidation and waste by rail transport services for commercial and decommissioning nuclear power plants and Department of Energy facilities. We have managed over 500,000 cubic feet of PCB/Rad material in the past 24 months. We successfully treated, consolidated and repackaged this material into specialized intermodal containers and gondola railcars for transport to disposal. A complete solution for your complicated to manage waste streams is with ALARON and MHF Logistical Solutions.

Contact: Tim Blythe 724-772-9800 ext 5521



RWE NUKEM Group is the nuclear services business unit of RWE Solutions AG, a leading supplier of integrated technical systems and services for utilities and industrial companies worldwide.

RWE NUKEM Corporation is pleased to announce that the wet waste processing facility is in full operation at the Alaron site in Wampum, PA. The facility has been successfully and safely receiving and processing liquid radioactive waste from several customers. The waste processing equipment that RWE NUKEM has sited at the Fixed Base Facility consists of its ALCON™ processes.

(RWE NUKEM Corporation - continued)

ALCON™ (Advanced Liquid CONcentration) consists of proven technologies such as the Concentrate-Dryer-1000 (or CD-1000), Reverse Osmosis, Ultra Filtration, and Demineralization Ion Exchange. Through the use of these systems, RWE NUKEM can offer considerable cost savings and waste volume reduction in the processing of radioactive liquids, evaporator bottoms, tank sludge, resins, etc. The waste acceptance criteria for sending material to the Fixed Base Facility may be accessed at www.rwe.nukem.com
Contact: Dan Davis 865-482-6601



HydroAire

is the largest independent pump service company in the United States. We are known in the industry for our detailed inspections, probable root cause scenarios, proactive solutions for extended life and performance, and quality repairs to stringent acceptance criteria. HydroAire has repaired and improved safety and non-safety related pumps since 1988. The high degree of repeat business is testimonial to our achievement in providing higher quality and responsiveness. Our shop, located in Chicago IL, is qualified to

10CFR50 Appendix B, and HydroAire has successfully completed two consecutive NUPIC audits. Our exclusive teaming agreement with Alaron has enabled HydroAire to repair contaminated equipment since 1991. The refinements to the EPRI DfD process have resulted in a high percentage of pumps being successfully decontaminated to free-release and subsequently repaired or upgraded at HydroAire's controlled environment repair facility. Our next focus is to qualify a repair facility at Alaron. This will allow for the repairing of equipment in its contaminated state. Contact: Faisal Salman 312-738-3000



NAC International

provides a broad range of services to the nuclear industry, including shipment of spent nuclear fuel and other nuclear materials throughout the world, nuclear fuel storage and transportation systems, anti-proliferation activities, and consulting expertise on the complete nuclear fuel cycle and associated issues. NAC clients include both operating and decommissioning nuclear facilities, research centers, universities, and government agencies. NAC's partnership with Alaron provides:

- Management understanding of key business considerations and factors for success;
- A central U.S. location and transportation infrastructure, which are conducive to timely performance and responsiveness;
- A skilled and trained work force, which delivers safe, high-quality, and on-time performance;
- A commitment to continuous development, which assures performance with a "can-do" attitude in accordance with all current requirements.

Questions or for more information:

Please contact Steve Ferguson 513-583-1744
or
Scott Eckler 513-759-4303

Alaron Corporation is proud to announce the opening of our Hot Machine Shop

In order to meet the needs of our pump and motor customers, Alaron has commissioned a full service Hot Machine Shop. Alaron is now prepared to offer machining and fabrication services for contaminated components to the entire nuclear industry.

Alaron is committed to ensuring that our shop has the equipment our customers need. Alaron is always willing to expand our capabilities and invest in new machines/equipment to meet those needs.

For complete specifications on the equipment below and our capabilities, please contact Steve Ferguson to schedule a site visit and tour. 513-583-1744

Our team is waiting to serve you!



Vertical Turret Lathe



Horizontal Boring Mill



Milling Machine



**Hard Bearing
Balance Machine**



LeBlond Large Capacity Lathe



Through Spindle Lathe



Soft Bearing Balance Machine

Nuclear Plants Build Up Management Power through Education and Training.

Let's face it – the strength of our business is in the detail. We need people long on technical knowledge who can manage to the minutia. Specific, nuclear power, task-based training is paramount to what we do, and we're good at making sure our employees get all the technical training and education they need to do it well.

What we're not so good at is training and educating our people to take on management positions. In fact, it's estimated that in the last ten years, we've lost anywhere from 33% to 50% of our management team to attrition. Managing takes more than just possessing the technical skill yourself. It takes leadership ability, knowledge of operations, and more. That's why people leave the job. When they're promoted into a management job without the right skills and education, it can be frustrating and unfulfilling to say the least.

The way to prepare a technically skilled person to take on a management job at your plant is to help him combine his nuclear training and experience with a relevant college degree program – one that awards credit for nuclear training, and provides a curriculum that is current and relevant to the world of work today. Better yet, find a degree program that does those two things and that is offered online – such as Bellevue University's.

A leader in offering online degree programs to adults, Bellevue University offers 16 bachelor's degrees that students can complete online, and they award credit for all sorts of industry, military, and corporate training.

The liaison connecting Bellevue University with nuclear power businesses throughout the

country is Leo Croteau, a 22-year veteran of the nuclear power industry, and former training manager at Nebraska's Cooper Station, who comments, ***"What I encountered were a lot of smart people with some college credits and lots of industry training hours, but not the bachelor's degrees needed for promotion."*** Croteau makes the match for employees with Bellevue University, an institution that has articulated Institute of Nuclear Power Operations (INPO) training for credit toward its bachelor's degrees.

"Students enter the program with close to 60 credit hours earned from other accredited colleges or universities, nuclear training, military training, and such, and they are able to complete their bachelor's degree in as little as 15 months," continued Croteau.

In the nuclear industry, Bellevue University's Management Degree is hot. Offered completely online, employees of the plants complete their degrees from home, studying and interacting with fellow students and faculty at times convenient for them. The effort can be challenging, but the dedication alone speaks volumes to hiring managers. They see the effort the employee makes to get ahead in the organization, and the ability to complete a task.

John Christianson, former Plant Manager of Nebraska Public Power District's Cooper Station, has witnessed the positive results that a college education brings to the workplace. ***"A college education nicely complements the task-based technical training of the nuclear work place. It offers a broader way to look at things - how to think and reason,***

and how to combine that with your training," he said.

Specific to the Bellevue University program, Christianson, who also was the plant's training manager, said of three management degree graduates who work for him, ***"The Management program from Bellevue University has exposed our employees to concepts of quality management, such as the need for continuous improvement in all phases of work. People learn to ask, 'What can I do better every day?'"***

In addition to gaining management strength, companies gain a valuable loyalty factor among employees. ***"An employee engages when his company helps him succeed in a management position – giving him a good, flexible degree program with relevant learning. When you feel valued and important, and that you have something to add, you stay,"*** noted Croteau.

Christianson concurs. ***"My employees with management degrees have demonstrated new leadership traits. They are pro-active and know what they want to improve themselves, and broaden their skill set and knowledge base so they can be successful in the future."***

Satisfied, loyal employees... voids filled in the management ranks... a productive, upward-moving organization. If these are among your plant's goals for the coming fiscal years, power up your management ranks. Enhance your employees' technical training with bachelor's degrees that make a difference.

Leo Croteau can be reached at Bellevue University at 1-877-299-0009 or lcroteau@juno.com

Visual Inspection Solutions From ROS, Incorporated

ROS, Incorporated (ROS) is proud to announce the completion of the development on the Convertible Viewing System (CVS) which includes a new ROS radiation tolerant black and white zoom video camera for underwater and in-air applications along with a shielded color zoom camera (SC-18), external lighting for each camera, a positioning unit, an umbilical cable and a control console.

The system was designed for fast and easy change out of all underwater components to suit most inspection needs while minimizing costs associated with maintenance and spares. This new camera system is currently completing final testing at the ROS headquarters in San Diego and will be ready for delivery to support fall outages.

ROS manufactures an array of harsh environment video, lighting, and positioning products designed for nuclear, oceanographic, industrial, and military applications. Our customers continue to voice high regard for our products and services as well as the ability to adapt to our customer's unique viewing **applications**. Some products designed for nuclear **applications** include:

HPS Lighting Products : HPS products feature either a 400-watt or a 1000-watt high-pressure sodium light bulb that provides numerous advantages over incandescent lighting when used under similar conditions. When strategically placed, the HPS-1000 easily replaces other pool lights four to one. Because of the extended lifetime of these bulbs, labor and maintenance costs, and more importantly, human exposure to radiation is substantially reduced (ALARA).

FlangeBot™: A remotely controlled, battery powered, wireless robot with capability to inspect, clean, view and record the reactor flange o-ring seating surface. This system was also successfully used on-site for Bottom Mounted Instrumentation (BMI) and Underhead Inspection to check for indications of stress cracking and corrosion.

FIDS – Fuel Identification System: A computer controlled, enhanced image viewing system that dramatically improves the readability of fuel assembly serial numbers while performing core mapping verification.

DC-18 - Dosimeter Camera: CCD color video camera with 18:1 zoom lens incorporated with an internal radiation sensor that enables continuous monitoring of the camera's ambient dose rate and accumulated dose. This enables timely replacement of camera module, thereby eliminating unplanned down time and considerably reducing costs associated with replacement modules.

So Many Choices...



Choose - radiation tolerant or shielded color zoom camera

Choose - with or without external wet/dry lights

Choose - with or without pan & tilt



Operate - from a single control console

All In One System



CVS **Convertible** **Viewing** **System**

- Simplify inspections with only one system to operate
- Reduce critical path time
- Reduce maintenance and spares costs



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ROS, Incorporated manufactures an array of harsh environment video, lighting, and positioning products designed for nuclear, industrial, military, and oceanographic applications.



Babcock & Wilcox Canada

Generating Powerful SolutionsSM

a McDermott company

Innovative Solutions for Nuclear Components



Focus on quality and innovation

From its roots as a foundry in the mid-19th century, to its success today as the only company manufacturing steam generators in North America, Babcock & Wilcox Canada has maintained its focus on quality and innovation.

The company's achievements and longevity have been built upon a strong commitment to work with customers to achieve outstanding results.

By successfully combining engineering, manufacturing, and service expertise with investments in research and development, B&W Canada has produced proven designs for steam generators with excellent operating records. More than 260 B&W nuclear steam generators provide power around the world with a record of unparalleled performance.

Today, B&W Canada continues to apply these same high standards in supplying replacement nuclear components.

Replacement steam generators

Drawing upon its broad background in the supply of steam generation equipment, B&W Canada started designing and manufacturing nuclear steam generators for CANDU reactors more than 40 years ago.

The extensive knowledge and experience gained from the CANDU program provided a strong base for designing and manufacturing replacement steam generators for the U.S. pressurized water reactor (PWR) market. Current B&W supplied PWR replacement steam generators incorporate the same uncompromising attention to detail and quality.

With design and manufacturing innovations such as lattice grid tube supports, CAP steam separators, and the application of a variety of alloys, B&W Canada continues to set the standard for the performance of steam generators and has earned its position as a leader in supplying replacement steam generators for the U.S. market.

Replacement reactor vessel closure heads

With the same commitment to quality and innovation that led to success in the replacement steam generator market, B&W Canada also supplies replacement reactor vessel closure heads with Alloy 690 nozzles for every type of pressurized water reactor.

In response to the unique challenges posed by stress corrosion cracking, B&W Canada's replacement RVC heads are designed to reduce operating stress and manufactured to reduce residual stress.

In addition, B&W Canada offers integrated solutions, such as an enhanced service structure design that minimizes inspection time, improves outage schedules, and reduces maintenance costs.

Strong customer involvement

B&W Canada's dedicated, professional teams work closely with customers to manage projects, meet challenges, and provide effective results.



From fully integrated North American facilities, with in-house project management, engineering, international procurement, transportation, and the world's largest clean room for assembling nuclear steam generators, B&W Canada continues to build upon its proud history of exceeding its customers' expectations.

For more information on how B&W Canada can focus on your requirements, please contact:

Doug Lee, Manager
Nuclear Products & Services Marketing
Babcock & Wilcox Canada
581 Coronation Blvd.
Cambridge, ON, Canada N1R 5V3
Phone: 1-866-445-6293
Fax: (519) 621-9681
email: nuclear@babcock.com
www.babcock.com/bwc



Focus (v) : to concentrate attention or effort

At Babcock & Wilcox Canada, we focus.

We focus our solutions to meet your unique requirements.

We pride ourselves on innovation and engineering excellence. Our nuclear steam generators have an outstanding performance record. Our replacement reactor vessel closure heads incorporate unique manufacturing processes to minimize residual stress. And our nuclear services for equipment inspection and maintenance keep your plant operating efficiently with minimal downtime.

Expertise. Attention to detail. Focus. Our approach delivers outstanding results.



a McDermott company

Babcock & Wilcox Canada Ltd.

Generating Powerful SolutionsSM

Safe, Secure Radioactive Materials Disposition

■ safety & quality ■ people ■ integrity ■ quality ■ innovation ■ excellence in customer care ■

On-Site Services

Our on-site capabilities range from packaging, shipping, and disposing small quantities of sources to millions of pounds of metal, concrete, dry active waste (DAW), and large components. Our proprietary, field-based technologies include resin and membrane-based liquid processing and dewatering systems (over 70 million gallons processed annually for nuclear power customers), steam reforming, fuel pool cleanout, solidification, vitrification, mobile compaction, and wet

waste centrifuge. We can readily perform characterization, removal, and disposition of highly radioactive material from spent fuel pools and waste collection tanks. We have mobile NRC radioactive material possession licenses and have comprehensive emergency response capabilities. We provide training courses in regulatory compliance (DOT) and job-specific, performance-based training. We are involved in ongoing decommissioning projects at Connecticut Yankee, Big Rock, and

Yankee Rowe; smaller commercial facilities; and many U.S. DOE sites.

Transportation

Hittman Transport Services, our wholly owned subsidiary, can handle radioactive shipping projects of all sizes, safely logging over six million miles each year. We have the largest fleet of nuclear-transport vehicles available and an extensive fleet of Type A and Type B shipping casks. Our newest cask, the 10-160B, is the largest Type B cask available and is licensed to ship transuranic (TRU) waste, by-product, source, and special nuclear materials in the form of irradiated hardware, solidified wastes, and dewatered resins. The 10-160B holds three times the payload of DOE's RH-TRU cask. We also manage unique transportation projects, including large component dispositioning, perform engineering and other required technical support, provide special equipment, and obtain all permits for transport.

Duratek-Owned Processing Facilities

We own and operate facilities where we process, ship to disposal, and store radioactive materials. We are the largest commercial processor of low-level radioactive waste (LLRW) with the capability to process over 60 million pounds of radioactive materials each year. We employ multiple technologies for cost-effectively processing DAW, bulk metals (including PCB-painted metals), wood, sludges, liquids, oil, and other materials. Using our Green Is Clean (GIC) assay program, we volumetrically assay 55-gallon drums and 90-cubic-foot boxes of waste for release to a regulated landfill. Our technologies include incineration, compaction, metal decontamination, metal melting, repackaging of alpha-contaminated wastes, source encapsulation, resin dewatering, sludge processing, and glove box dismantlement. We have contaminated equipment storage space and a full-service radiological hot shop.

Disposal

Chem-Nuclear Systems, LLC (CNS), our wholly owned subsidiary, has operated the Barnwell LLRW Disposal Facility for the State of South Carolina since 1969. This facility utilizes three types of shallow waste disposal trenches. The slit trenches are used for disposal of irradiated hardware and large-quantity sealed sources from commercial industries throughout the U.S. CNS safely and routinely handles slit trench shipments of 25,000 curies or more of activity. Other wastes, including large components, are buried in the Class A and Class B/C trenches. CNS operates the site with excellent safety and regulatory compliance records.

Safe, Secure Radioactive Materials Disposition

Duratek tackles complex radiological challenges from customer site to disposal with comprehensive technologies and services that safely and cost-effectively address tough issues in radioactive materials management and environmental remediation.



Duratek[™]
Nasdaq:DRTK



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On-Site Services	803-256-0450
	865-425-4606
Waste Processing	800-863-2966
Federal Services	303-542-2800
Transportation	800-HITTMAN
Engineering	803-256-0450
Barnwell Disposal	803-259-1781

www.duratekinc.com

GUTOR Uninterruptible Power Supply (UPS) systems

GUTOR Electronic is a leading engineering company providing industrial power supply protection solutions (UPS). The company is part of the American Power Conversion corporation (APC), the world's largest UPS company. Product range include AC systems in the sizes of 5 – 220kVA single or three-phase output, and DC systems available up to 1200A for the use in critical process control applications in the Oil&Gas, Petrochemical and Power Generation industries, including Nuclear plants.

Customers can expect more than just a product. GUTOR designs complete customized UPS solutions. Related services include consulting, engineering, comprehensive documentation, commissioning and long-term customer support. GUTOR system designs are modular and comply with IEEE standards for the qualification of Class 1E equipment, mandatory in nuclear applications. The flexible state of the art technology allows the sizing of power modules, the paralleling of several units and many other adaptations to fulfil individual requirements. Project specific security and quality aspects can furthermore be taken into account.

GUTOR maintain its own and certified quality management system for the quality control of all processes, products and services. In addition to regular internal controls, the management has been collaborating in external audits and quality assurance programmes. In particular the company can comply with nuclear quality programmes like CSA Z299, KTA1401, IAEA 50-C-QA and US10CFR50 appendix B.

GUTOR UPS systems have been installed and implemented in the process controls of quite a number of nuclear sites, throughout Europe, Canada, China, India, Ukraine and the United States.

For questions regarding our competences and experience in UPS system applications for the nuclear industries, you can send queries to gutor.info@apcc.com



WE PROTECT YOUR POWER SUPPLY



GUTOR industrial UPS systems follow strict quality and safety standards.

GUTOR

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Representative offices in Brazil, China, Emirates, Germany, India, Malaysia, Russia, Saudi Arabia, USA



JOSEPH OAT CORPORATION

Founded in 1788, Joseph Oat Corporation is the **oldest, continually operated fabricator in North America**. Conveniently located on the Delaware River across from Philadelphia, Joseph Oat Corporation economically ships equipment to ports worldwide. Privately owned and operated, the company is internationally recognized as a quality fabricator of a variety of alloys and reactive metals for the most demanding and critical applications.

Joseph Oat is one of the largest providers of **nuclear safety related pressure vessels and heat exchangers**. Our equipment is operating in more than 70 power plants around the world, some for over 30 years. **One of the very few companies who have retained the nuclear "N" stamp since the inception of this designation by ASME**, we have continued to serve utilities through the active construction phase. We provide retrofit and replacement equipment on a continuing basis in the U.S. and we are currently participating in active nuclear plant construction in other parts of the world.

Technologically, Joseph Oat Corporation has consistently been one of the **true leaders in heat transfer technology**. We are not only users of internationally recognized software such as HTRI and BJAC, but we are contributors as well. Our unique experience with problems facing power plant designers allow us to often offer innovative and economic solutions to perplexing problems. We perform thermal and mechanical rating of all the heat exchangers we build. Joseph Oat Corporation performs vibration analysis, seismic and structural analysis, and fatigue analysis in-house.

Our engineers can participate together with engineers of nuclear utility companies to **solve problems dealing with water chemistry, vibration, erosion, and special safety issues**.

Joseph Oat's production facility encompasses approximately 120,000 square feet with 160 ton lift capacity. Shipments can be made by truck, rail, or ship. We maintain a fully enclosed, atmosphere controlled **clean room for the fabrication of reactive metals** and special equipment requiring full segregation from other fabrication work.



ESTABLISHED 1788

JOSEPH OAT CORPORATION

2500 Broadway, Drawer #10, Camden, NJ 08104 USA
856-541-2900 fax 856-541-0864 ■ www.josephoat.com

Joseph Oat Corporation possesses the ASME Sec. III "N", "NPT" and "NA" stamps and Sec. VIII Div. 1 "U" and Div. 2 "U-2" stamps. In addition, we are ISO 9001 certified by TUV.

Below are the products we have furnished to nuclear power plants:

- Safety related shell and tube heat exchangers
- Safety related air coolers
- Safety related pressure vessels and storage vessels
- Safety related filters
- Safety related strainers
- Spent fuel racks
- Nuclear waste canisters
- Orifice plates, venturies, and other flow restriction devices
- Components supports
- Pump supports, bedplates and columns
- Spray nozzles
- Piping
- Safety related special weldments
- Raw materials such as bolting, flanges, plate, etc.

Joseph Oat's Quality Assurance Program has been audited by most major nuclear plants and independent agencies, including the multi-utility consortium, NUPIC. Refined and honed over the many years we have participated in the Nuclear Industry, our Quality Assurance Program is an effective and crucial element in all aspects of the services and products we provide.

We are confident that you will find Joseph Oat well qualified to meet your nuclear design and product requirements, whether you are purchasing new or replacing old equipment. Should you require more information or would like to speak to us, please contact the undersigned:

Edward S. Marinock
Vice President

John McDonald
Manager, Marketing and Sales

Call, fax or e-mail us for a copy of our capabilities brochure.



THE EXPERIENCED AND RELIABLE SOURCE FOR

NUCLEAR COMPONENTS

▼ Fabrication of canister (MCO) shell for the Dept. of Energy



▼ Commercial nuclear reactor burial cask



▲ Clean Room for the fabrication of reactive metals and canisters



▲ One of over 400 MCOs presently being fabricated for the Hanford, WA facility

Over 100 power plants in 15 countries rely on Joseph Oat Corporation equipment.

- 35 continuous years of maintaining ASME SEC III CL. 1, 2 and 3 "N" stamp
- NUPIC audited
- MCO's and other canisters
- Dry storage fabrication for nuclear spent fuel
- Radioactive waste processing and storage equipment
- Heat exchangers
- Pressure vessels
- Hydrogen coolers
- Pulsation dampeners
- Filters
- Strainers
- Special weldments
- Steam condensers
- Heat transfer design services
- Seismic analysis
- Fatigue analysis
- Spare parts & miscellaneous materials



JOSEPH OAT CORPORATION

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email: marinock@josephoat.com

www.josephoat.com

Our **Quality Assurance Program** is qualified for ASME Section III Class 1, 2, 3, and MC, and Section VIII. It also conforms to 10CFR50 Appendix B, ANSI N45.2, NQA-1 and ISO 9001.



HEAT TRANSFER RESEARCH, INC.

EXCEL SERVICES CORPORATION

Enhancing Safety • Improving Performance • Reducing Costs

For almost 19 years, EXCEL has delivered innovative solutions to our clients worldwide that have enhanced the safety, improved the performance, and reduced the cost of operating their nuclear facilities. EXCEL's continued partnership with our client's goals has enabled us to consistently provide the highest quality of services of real value. EXCEL continues to adapt and grow in the ever-changing nuclear services marketplace so as to be better aligned with the needs of our clients. Some of our major current services include:

Regulatory and Licensing Services

EXCEL is the industry leader in helping nuclear facility licensing organizations address new regulations, special improvement programs, and compliance backlog reduction. We lead because of our highest-quality risk and safety analyses, as well as the experience of our top industry professionals.

EXCEL pioneered the industry regarding facility specific conversions in Improved Technical Specifications (ITS). We have demonstrated to regulators and utilities the lasting benefits in facility safety and performance achieved by aligning upgraded licensing basis documents, Technical Specifications, as well as facility operating processes, programs, and procedures. This enhanced licensing basis is a core element of facility life extension and decommissioning activities.

Risk Informed Regulations and Technical Specifications Support
Plant Life Extension and License Renewal
Improved Technical Specifications
Plant Safety Evaluations and Safety Analyses
Final Safety Analysis Report Development and Update
Spent Fuel Storage Facility and Dry Cask Storage Projects
Plant Decommissioning
Nuclear Safety and Licensing
Regulatory Compliance and Support
Authorization Basis Development and Updates
Unreviewed Safety Question Programs, Procedures, and Evaluations

Hazards and Safety Analysis
Training
Quality Assurance
Surveillance Testing

Management and Consulting Services

Simplicity, flexibility, and cost-control with full regulatory compliance are key to becoming more competitive. EXCEL works with clients to re-examine the underlying infrastructure of facility management organizations. Authority, responsibility, and resources are systematically defined, refined, and applied.

The development of tools to gather and analyze information is essential to advanced facility operations. EXCEL uses the latest industry tools and management processes ensuring that our support quickly integrates into existing activities. These tools may be custom-designed for specific client needs and for long-term client manageability and benefit.
Consulting
Senior Management and Policy Support
Strategic Planning Support
Project Management

Engineering and Technical Services

Superior performance and meeting the highest expectations are EXCEL standards. We focus on managing commitments and ensuring quality in facility engineering and design throughout facility lifecycle.

Changes in facility hardware or analysis, degraded conditions, and issues related to the content of the Safety Analysis Report or Authorization Bases can significantly increase facility regulatory risk. But complete and accurate Safety Analysis Reports can enhance safety, and benefit both regulators and operators. EXCEL's expertise in developing complex, large-scale, licensing submittals, as well as its leadership in Improved Technical Specification conversion, are directly applicable to complex and detail oriented projects.

Engineering and Design
Commitment Management
Quality Assurance
Probabilistic Safety Analysis
Plant Modification Design and Implementation
Configuration Management
Power Uprate

Training and Operations Services

Knowledge at all levels of the facility organization is essential to ensure that requirements are met and operations are carried out efficiently and effectively. To ensure that the full benefits of facility improvements are realized and effectively implemented, personnel training is crucial. EXCEL's training has proven to increase understanding of innovative and complex changes.

The EXCEL team has developed tools that methodically examine the technical accuracy of the entire operating testing program. Basis files are constructed for each test, providing a configuration baseline for future changes. The application of the tools identifies and facilitates the elimination of unnecessary testing.

EXCEL instrument calibration interval adjustments have achieved significant cost savings at nuclear facilities. Application of EXCEL experience with procedure evaluations, failure analysis, drift evaluations, preventive maintenance programs, and other facility requirements ensures an integrated solution for optimizing test and calibration intervals.
Training
Testing and Start-up
Plant Operations and Maintenance Support
Surveillance Programs
Calibration Interval Extensions
(24 Month Extensions)

The Nuclear Performance Solution

EXCEL
SERVICES CORPORATION

Just Another Ordinary Day

We help keep it that way.

Credibility and Integrity. Experience and Expertise. Commitment and Reliability. We apply these qualities everyday. We're EXCEL and we are the Nuclear Performance Solution. For almost nineteen years, we have provided the highest quality technical and engineering professional services to almost every nuclear facility in the United States and many facilities and organizations internationally. And we're ready to continue providing services to the next generation of nuclear facilities.

We're at the vanguard of the industry in supporting major initiatives to improve existing facilities' safety and performance and increase the opportunity of nuclear energy. We will continue to enhance safety, improve performance, and reduce costs.

EXCEL continues to be one of the strongest supporters for all applications of nuclear science and technology as evidenced by our support of nuclear organizations such as the American Nuclear Society, the Eagle Alliance, and the Young Generation.

Nuclear organizations, both commercial and federal, look to EXCEL to solve the tough industry challenges. And EXCEL is at the top of a very short list of companies capable of handling them. We're currently developing solutions to issues such as:

- Safety Conscious Work Environment and Safety Culture
- 24-Month Fuel Cycle
- Setpoints and Calculations Methodology
- Improved Technical Specifications
- Early Site Permits (ESP), Combined Operating License (COL) and new nuclear plants
- DOE facilities ability to meet requirements imposed by the new Nuclear Safety Regulation, 10 CFR 830

EXCEL, the Nuclear Performance Solution. As a source of significant experience and expertise, EXCEL maintains a unique position in the nuclear industry. We've helped improve the industry's safety and performance in the past. We're here to help maintain and to continue to improve that level of performance so your future is even brighter than the brightest lights you power.

The Nuclear Performance Solution

EXCEL
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Metals, electroplating
Fertilizers, base materials, explosives
Detergents, surfactants, cosmetics
Textiles, paper, ceramics
Paints, lacquers, solvents
Mineral resources, cement
Energy, power plants
Government
Air and water quality

Company Description

In April 2000, Peak Analytical, Inc., a privately held laboratory specializing in ion chromatography, entered into a partnership with Metrohm, Ltd., to form Metrohm-Peak, Inc. While Metrohm-Peak, Inc., is the sole representative for Metrohm Ion Chromatography Products in North America, the company still boasts a full-service laboratory known throughout the world for reliability, honesty and precise results. The company's focus, to provide quality products, analytical services and care for customers at fair and reasonable prices, has provided the mechanism for growth that continues today. At Metrohm-Peak, Inc., the number one priority is the satisfaction of each individual customer.

Chief Chromatographic Technique Supported

Ion Chromatography

Major Products/Services

Complete range of ion chromatography instrumentation, consumables, services, software, reagents, standards and accessories. Our complete line of products offers superior innovation, affordability, reliability, superior quality backed by unrivaled service and support after the sale. Simple to use and maintain, our products set the new standard in ion chromatography. As well, the Analytical Services Department is available for sample support, extensive methods development and analyses in the areas of IC, HPLC, CE and ICPMS.

Facilities

Metrohm-Peak, Inc., is located in Houston, Texas. The facility houses corporate offices, a main laboratory, applications laboratory, R&D laboratory and training areas.



power up and stay up

workhorse process ic analyzers

this is metrohm ion chromatography

simple to use. easy to maintain. low cost of ownership.

metrohm-peak 
ion chromatography

Complete range of ion chromatography instrumentation, consumables, services, software and accessories. Quality benchtops and onlines offer superior innovation, affordability, reliability, superior quality - backed by unrivaled service and support.
fon 800.410.7118 site www.metrohm-peak.com



Washington Group International achieves results for nuclear operations

Through its comprehensive, integrated engineering, construction and maintenance services for nuclear plant uprates, modifications, outage support, and digital instrumentation upgrades, Washington Group International helps its customers achieve system reliability and operating efficiency.

"We have supported the commercial nuclear power industry since its infancy," said Louis E. Pardi, president of Washington Group's Power business unit,

"and we are dedicated to helping our customers keep their operating units at optimum performance, safety, and cost-effectiveness."

Fifty years of nuclear experience

Washington Group has designed and built nuclear power plants for 50 years. The company is the engineer or constructor of record for more than 40 commercial nuclear generating units, representing a combined capacity of more than 35,000

megawatts. The company has also provided services to every nuclear generating station in the U.S., and has participated in more than 200 nuclear plant refueling outages. At least 20 refueling outages were completed in 40 days or less.

The company also offers experience with license renewal, alternate source terms, control room habitability projects, and spent fuel storage options.

Washington Group is a leading provider of ISFSI designs and comprehensive licensing documentation. Services include construction and fabrication planning plus ISFSI implementation at both reactor and centralized sites for all of the currently available dry cask storage technologies.

Other Washington Group business units serve the U.S. government's nuclear program through assignments at the Savannah River Site, the Idaho National Engineering and Environmental Laboratory, the Hanford Nuclear Reservation, and the Oak Ridge National Laboratory.

Responsiveness through multi-year contracts

Washington Group provides continuing support for nuclear plant operations through alliances and long-term service contracts that foster client-contractor teamwork and promote responsiveness. For instance, in 2002 the company began a three-year Engineer of Choice contract, providing as-needed services at a major utility's 10 nuclear generating stations. Through an alliance begun in 1990, Washington Group has provided modification and supplemental maintenance services at a major Midwest nuclear plant.

Steam generator & reactor pressure vessel head replacement

Washington Group's SGT Ltd. partnership with Framatome ANP leads the nuclear industry in steam generator replacement and reactor pressure vessel head replacement. In fact, SGT has set repeated records for steam generator replacement. A recent replacement was completed in only 66 days, 32 days ahead of schedule.

SGT is under contract to provide reactor pressure vessel head replacements at four generating units in the South and begins work on the first unit in 2004.

SGT works with its customers to schedule replacements well in advance of planned outages so that the new components can be ordered and ready for delivery on time.



WASHINGTON GROUP INTERNATIONAL HELPS KEEP THE PRICE OF NUCLEAR POWER COMPETITIVE

The key to controlling nuclear power generation costs is operating a unit at optimum capacity and performance. That is just what Washington Group is doing now for the owners and operators of nearly 40 nuclear generating units across the United States and abroad.

We provide integrated, cost-effective life cycle services—engineering, procurement, construction, maintenance, and quality control—focused on the reliability needed in today's competitive market and on an absolute dedication to safety.

Washington Group is committed to helping you manage the cost of nuclear power. To learn more, call us at (609) 720-2959.



Washington Group International

Integrated Engineering, Construction, and Management Solutions

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www.wgint.com • E-mail: robert.zaist@wgint.com

State-of-the-art LPM System at an Affordable Price

Physical Acoustics Corporation (PAC) presents the **Sentry**, a digital acoustic emission system that offers both Loose Parts Monitoring (LPM) and Acoustic Leak Monitoring (ALM) in one system. Offering many state-of-the-art features, the Sentry also has an extremely competitive price. Unlike other LPM systems, the loose parts detection process is completely digitally automated to minimize the false alarms generated by "acoustic and vibration" type systems. Additionally, the system is equipped with three different noise discrimination filters to block false alarms.

The purpose of LPME is to detect and evaluate loose parts in reactor systems using transient acoustic signal analysis. Sensors/accelerometers are mounted at strategic positions on the system to detect the impact of any loose parts as they come into contact with the pipe or vessel walls. Acoustic emission propagating from the impact points is converted from mechanical energy into an electrical signal, which is

processed by the Sentry's Loose Parts Monitor Data Acquisition System (LPME-DAS) Software. The data acquisition computer then records it. The system alarms when a loose part is detected and provides a user-friendly interface for the operator to analyze the acoustic emission transients, differentiate between noise and impact signals, and determine location and impact characteristics.

The cabinet houses the entire LPM/ALM system, including the data acquisition chassis that is capable of holding 8-96 channels (in 8-channel increments), a video rack mount CRT monitor, keyboard, mouse, color printer, alarm and I/O panel for visual status and alarm relay/Ethernet outputs and a preamplifier signal input panel. The entire cabinet and system have been seismically and EMI tested and certified. Alternatively, the system components can also plug into your existing rack mount cabinet.

The **Sentry** is extremely reliable and available at a lower overall cost

than any other existing solution. Additionally, the company manufactures superior accelerometers /acoustic emission sensors and charge amplifiers that can handle the high temperature and nuclear radiation environments.

PAC also undertakes projects on a turnkey basis. This includes installation or supervision of our client's own labor to install the equipment and assistance with commissioning to final handover to the customer. Contact our LPME Project Manager, Terry Tamutus, at 609-716-4015, e-mail ttamutus@pacndt.com or general email at sales@pacndt.com. We look forward to working with you.



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E-mail: sales@pacndt.com
Internet: www.pacndt.com**

Loose Parts Monitoring for Reactor Safety

The **Sentry**, from Physical Acoustics Corporation (PAC), is a digital acoustic emission system that has the dual capabilities of Loose Parts Monitoring (LPM) and Acoustic Leak Monitoring (ALM). This system has an extremely competitive price along with many state-of-the-art features. What sets the Sentry apart from other systems is its digital automation, which automates the loose part detection process and minimizes the false alarms generated by "acoustic and vibration" type systems. Additionally, it is designed with three different noise discrimination filters to block false alarms.



Features and Benefits

- PC based data storage
- Extremely competitive price
- Seismically tested and certified
- Digital Signal Processing technology
- User-friendly Windows based software
- Intranet, LAN or plant based monitoring
- Multiple alarms and alarm level settings
- Graphical displays showing sensor locations
- Nuclear rated sensors and charge amplifiers
- Rich in automated and user guided system diagnostics
- Full documentation for easy installation and maintenance
- Meets ASME OM-S/G-1997 Part 12, and NRC Reg Guide 1.133
- Prevent false alarms with three sequential discrimination filters



For support with your application or more information, contact Terry Tamutus at 609-716-4015 or e-mail ttamutus@pacndt.com

A Member of the MISTRAS Holdings Group



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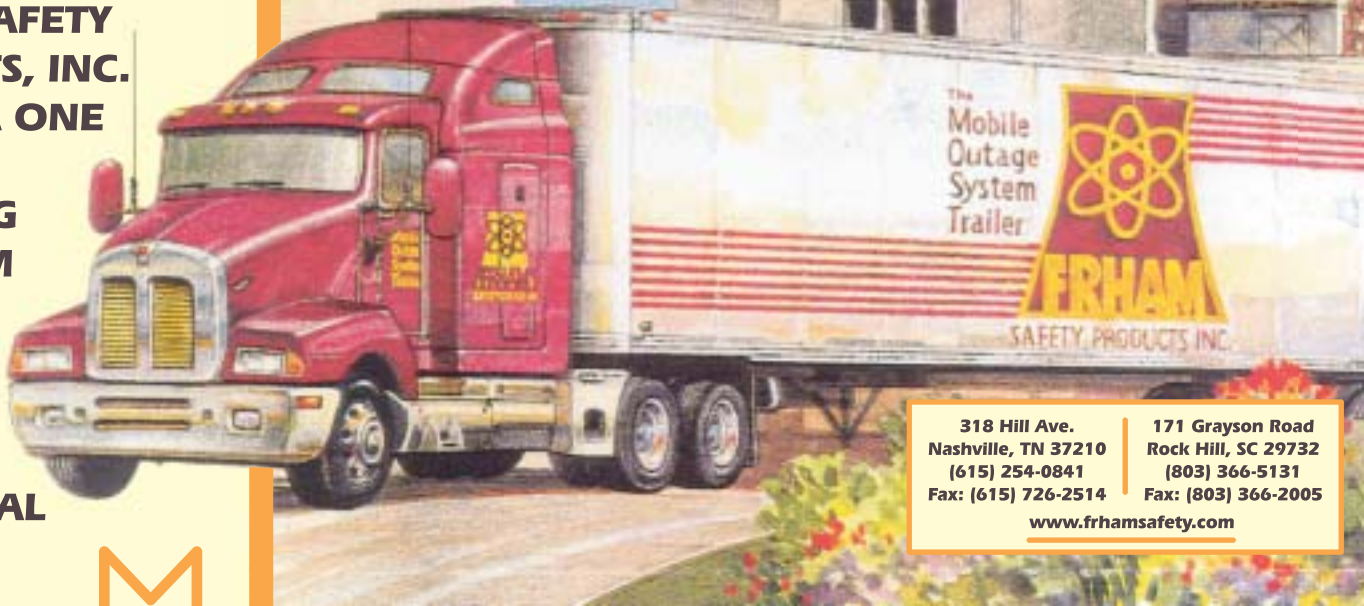
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- **FRH/SG375-XL**
Blue disposable gloves with textured fingers. Extended Padded cuff. Powder free.
- **FS500/14**
White disposable cotton glove liner.
- **FS3500SBL-SIZE**
Disposable scrub shirt with short sleeve, rounded neck binding, breathable and breast pocket.
- **FS3500LSBL-SIZE**
Disposable scrub shirt with long sleeve, rounded neck binding, breathable and breast pocket.
- **FS3510SBL-SIZE**
Disposable scrub pants, drawstring waist and one back pocket.
- **FRH/2131**
White disposable hard hat cover. Bouffant cap.
- **FSFHY5000**
Disposable Hood - Frham offers disposable hoods in all three materials, "Stay Clean", "Stay Safe", and "Stay Cool". All hoods utilize a 4-panel construction for desired comfort and proper fit. Velcro closure in front and elastic back.
- **FS2210**
Booties - Frham offers disposable boot liners in all three materials depending on the level of protection needed. Available with layflat sewn heel and toe construction with an elastic top closure. Ideal for wearing under Frham's exclusive "Totes" rubber overshoe. One size fits all.
- **FS2105NS**
Disposable non-skid bootie, blue, ankle high, elastic closure.
- **FRH/NCV5914-SIZE**
Stay Cool fabric is a breathable, liquid and particle barrier "that utilizes a Microporus Film (a soft, quiet, polypropylene film, laminated with a polypropylene nonwoven). The result is a fabric ideally suited to applications where resistance to liquid transmission is a requirement and where comfort and "breathability" are highly beneficial. For the best in waterproof, breathable and disposable protection, try the Stay Cool. Available in Yellow or White.
- **FSY2042-SIZE**
Stay Clean - This barrier fabric is a unique trilaminant construction which incorporates spunbound outer layers which sandwiches an inner layer of meltblown fibers. In addition, a water resistant and radioactive particulate barrier is complimented by excellent breathability. Available with pocket & Dosimeter Tab. With or without hood.

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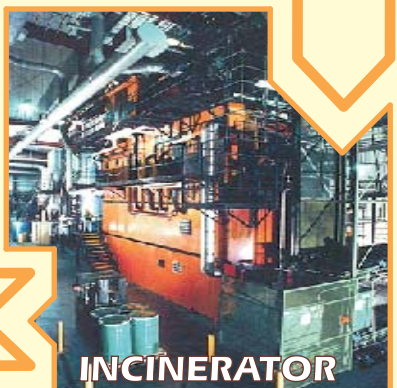


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To compliment your Mobile Outage System Trailer (M.O.S.T.), Frham is offering products through a systematic approach of life cycle pricing to include disposal at the purchase point. This would include the price of the product, the price of burial, the price of the freight to the plant, the price of the freight to the processing facility, and the freight to the burial site



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BCP is an established consulting firm

dedicated to supporting our nuclear clients' needs in all the engineering disciplines and in project management services.

Call on BCP for support and get the benefit of over twenty years of experience committed to engineering excellence and to building successful long term working relationships with the management and staff of investor and government-owned nuclear facilities.

BCP performs fixed-scope projects, provides hard to find engineering and maintenance specialty services and supports clients with qualified staff on a time and materials basis. Additionally, we provide fixed scope site maintenance equipment and services for Incore Flux Detector Systems, including repair, replacement and preventive maintenance.

Major Clients Served

- Commercial Nuclear Power Plants
- DOE Nuclear Facilities
- Nuclear Utilities in Europe and Asia

Specialized Plant Services

- Incore Flux Thimble/Seal Table Cleaning, Repair & Replacement
- Containment Building Inspection & Testing
- Reactor Vessel Visual Inspection/Retrieval
- Specialty Tooling Design, Fabrication
- License Renewal Project Support
- Quality Assurance Services

Company Background

Since BCP's incorporation in 1981, we have provided engineering consulting, management and other technical support to domestic and foreign electric utilities, independent power producers, U.S. Government entities and private industry. Headquarters is located in New Orleans, LA., with a regional office in Dunedin, FL.

Twice named to the Inc. 500 as one of the fastest-growing private companies in the United States, BCP has also received the Blue Chip Enterprise Award, presented by the U. S. Chamber of Commerce and *Nation's Business* magazine in recognition of proficient business management.

The BCP Approach

BCP provides value-added services to its clients at a cost advantage for each project by:

- Working with the client to clearly define a set of requirements and deliverables for the task at hand.
- Assembling a team of proven performers to accomplish that task.
- Managing project tasks with necessary client input to achieve the desired results within budget and on schedule.
- Closing-out the project after delivery of agreed-upon services, with no burden of carrying over team members as overhead between projects, passing the cost savings on to the client

Company Attributes

BCP brings the following major attributes to our client relationships:

- A record of providing service to all of the nuclear plant operating utilities in the United States and several in Europe and Asia.
- A thorough knowledge of applicable regulatory, engineering and technical requirements of the industries we serve.
- A reputation for quality, reliability and customer service with the broad client base that BCP has built and carefully nurtured over the years.
- Superior proven support in Engineering Consulting, Project Management, Information Technology and Specialized Nuclear Plant Services.
- A culture designed to support our clients, employees, suppliers, and that underpins the mutually profitable long-term relationships we enjoy with our clients
- Long-term working relationships with key engineering and technical specialists who respond to the needs of BCP clients.
- Effective uses of information technology, both in the conduct of internal business processes and the performance of client project assignments.

Contact BCP:

P.O. Box 6876
New Orleans, Louisiana 70174
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The Quality Nuclear Power Support You Can Count On

Our Quality Commitment

Quality is the centerpiece of the value and service we provide to our clients. It is infused in our people, our programs, our processes, and our practices. We believe that it is the quality of our deliverables that ultimately delivers our projects in budget and on schedule.

Our Leading Expertise Commitment

Key to our ability to produce quality deliverables is the leading engineering, design, analysis, and project management know-how that we maintain current through our highly experienced staff and extensive state-of-the-art applications. And, of course, we are the company that always manages to get it done.

Our Power Focus Commitment

We've been thinking power... exclusively for 113 years. We think that's a rather firm commitment to maintaining our focus on what we do best.

Our Nuclear Commitment

Nuclear power clients have been a primary part of our power focus since 1954, pretty much when it all started. Nuclear clients have good reason to have confidence in our capabilities, not only from our quality, expertise, and focus, but also from knowing we will be here for them when needed with what they need, as we have been for 50 years. Owners enlist our broad support as their preferred engineer and rely on our expertise for specialized problem-solving. Our current activities encompass emerging issues and leading edge initiatives such as:

- Power uprates
- Digital controls
- Security upgrades
- Dry fuel storage

That's in addition to our extensive on-going engineering, design, and analysis for nuclear station owners for diverse projects including:

- Modifications
- Performance improvement
- Outage and restart support
- Due diligence for plant transactions

To discuss your specific needs, contact Bob Schuetz at 312-269-6630

Sargent & Lundy LLC

55 East Monroe Street
Chicago, IL 60603-5780 USA

www.sargentlundy.com

Westinghouse Electric Company LLC

Westinghouse Electric Company LLC, has a long-standing commitment to excellence in commercial nuclear reactor technology. Today Westinghouse represents the largest worldwide nuclear operations experience base and its technology is the basis for nearly half of the world's nuclear power plants, many of these being top operating units by capacity factor.

Our nearly 9,000 dedicated employees are focused on listening and responding to specific customer needs with the goal of creating success for our customers.

With locations across the globe, the three core businesses of Westinghouse are combining years of wisdom and experience with the youthful energy of today's up and coming nuclear energy professionals.

NUCLEAR SERVICES

With primary locations throughout the United States and Europe, Westinghouse Nuclear Services' wide range of products and services provide global solutions with a local focus to help keep nuclear power plants operating safely and competitively worldwide. Westinghouse Nuclear Services works closely with customers in three essential areas: field services, engineering services, and repair, replacement and automation services.

NUCLEAR FUEL

Westinghouse Nuclear Fuel is a leading integrated supplier of nuclear fuel products and services. Using global capabilities, Westinghouse Nuclear Fuel supplies products, services and technology to PWR, BWR, VVER, AGR and Magnox fuel customers.

NUCLEAR POWER PLANTS

Westinghouse Nuclear Power Plants specializes in plant design, systems engineering, component design, equipment manufacturing and project management for new nuclear power plant projects worldwide. These activities are carried out through two business areas, New Plants and Nuclear Component Manufacturing.



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Westinghouse Electric Company LLC is A BNFL Group company

At Westinghouse, we're proud to be part of the global nuclear energy industry, and we're ready to respond to the challenges yet to come in securing our energy future by providing clean, reliable and economical nuclear power.



Wondering if we're committed to you?

You've heard us talk about our **Customer 1st** initiative for a few months now.

How do you know it's not just rhetoric?

Well, we've created a full-time position of senior vice president, Operational Excellence to make sure **Customer 1st** remains our number-one priority.

We've set aggressive goals for ourselves that include implementing as many as 300 quality improvement projects, and having as many as 1,000 employees fully immersed in **Customer 1st** in the first year.

Why are we doing this?

Because you talked and we listened.

Just another example of our commitment to your success.



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