



Why OREX?

Special Edition

February 2007

In the past five years, OREX has exploded on the scene in the commercial nuclear power industry. OREX users have realized the many benefits of using disposable, protective clothing rather than traditional, launderable protective clothing. As a result, OREX users have grown from only two plants in the spring of 2002 to approximately 45 plants currently. And this list continues to grow at a rapid rate. In 2006, over 1,000,000 OREX coveralls were used at these 45 plants. The Department of Energy, Oak Ridge Site and also the Savannah River Site began using OREX in 2006. The OREX Team has been busy learning from field experiences, improving and expanding the product line, increasing production capabilities, creating innovative logistical solutions to meet customers' needs, and providing site specific, in-plant customer support to help plants transition to OREX and improve performance.

Thus, in a relatively short time, the OREX technology of single-use protective clothing has become a proven concept. OREX has, in fact, changed the protective clothing paradigm. Many plants have fully embraced OREX and have realized the numerous benefits of converting to disposable protective clothing, and in particular OREX polyvinyl alcohol (PVA) dissolvable products. Now other vendors are realizing that they must offer a competitive response in order to compete in this changing market-place. In response, some vendors are now offering disposable products, including conventional disposal products as well as some PVA products. Plants that are seriously considering disposable products may be faced with a variety of choices.

To assist utilities with their own evaluation, we believe there are some key questions that should be asked relative to all available choices. The following are some questions and key points to consider when evaluating a transition to a "single-use" clothing approach. Additionally, we have provided our response to these questions and moreover we strongly encourage you to seek out the opinions of your peers at other utilities using OREX or other single-use products as well as information from the various vendors that offer various products. The questions below might serve as a template for your own evaluation along with other questions you might wish to add. OREX is backed by a team of industry professionals. Our company is known as Eastern Technologies Inc. (ETI). We on the ETI team firmly believe that you will find that we stand above the competition.



EASTERN TECHNOLOGIES, INC.

Website:

www.orex.com

OREXTM

Question: Do you endorse the PVA technology? Why?

Answer: YES! OREX Technologies International (OTI), our predecessor, and several of our current team members developed the PVA technology. We are the leaders in this area. There are numerous patents on this innovative technology. We understand it. We perfected it. We believe in it. Plain and simple, it is what we do. Our team is composed of a group of individuals from the nuclear industry that have “walked in your shoes” for many years and our passion for OREX is based on our experience in the nuclear industry and our desire to help improve industry wide performance and offer solutions not previously available. We believe that OREX can be used for almost all of your protective clothing needs. The obvious exceptions are gloves, shoe covers, FR apparel and a few instances where an absolute impervious barrier is necessary. The use of PVA technologies offers many benefits never before available. The value equation is driven by the following key benefits that our users are experiencing firsthand.

Reduction of Personnel Contamination Events (PCE's) - Each dressout is 100% new and clean. PCE's from residual contamination in laundered clothing are eliminated.

No Waste - The patented OREX treatment system decontaminates and dissolves the OREX products. No waste is returned to the customer.

Reduced Heat Stress – OREX is lighter and “breathes” better than conventional cotton or poly-cotton coveralls. Workers are cooler and more comfortable wearing OREX. This feature has been a major driver for some of the DOE transition to OREX.

Reduced Risk of Lifting Related Injuries – OREX is 70% lighter than conventional products. Workers who stock OREX are at less risk of injury associated with material handling.

Reduction or Reallocation of Resources – All OREX products can be delivered to the site prior to an outage. Inventory can be stocked in bulk, ready for issue. Laundry shipments can be reduced or completely eliminated. This offers potential reduction of RP and Decon staff or reallocation of staff to more significant radiological or decontamination activities.

More and more of our users are proving the above benefits to be a fact and their results speak for themselves. Call and ask them!

Question: – Do you support full conversion to PVA disposable products vs. launderable products? Why or why not?

Answer: Yes we do and so do our customers. ETI, has many years of experience with launderable programs and understands the pros and cons of such an approach. OREX is proven to be a viable replacement for launderable products, and should be used to the extent possible to maximize benefits associated with conversion to PVA disposable products.

"We are using your PCs for the first time in the drywell and they are getting rave reviews! I know you have heard it all before, but the workers are saying they are much more comfortable." - Drywell Supervisor



One of the most significant values in using PVA disposable clothing is **improved logistics** associated with handling, and minimizing or eliminating routine laundry shipments during outages or routine D & D activities. By doing so, customers have reported significant costs savings due to reduction in staffing, or through reassigning these resources to more significant radiation protection (RP) or decon work activities.

- While it is possible to have “zero shipment” outages with launderable products, we do not believe such an approach is feasible or reasonable for the industry at large. It is important for us to provide an approach that will work for every facility. A “**zero shipment**” **outage** is possible for every commercial power plant using OREX and several plants are proving it.

Question: What PVA based products do you have available?

Answer: We believe that offering a variety of products is very important to the whole concept. We offer a comprehensive line of PVA disposable products, including:

- Coveralls, hoods (variety of styles), and booties;
- Deluxe (splash resistant) coveralls and booties;
- Multiple dosimetry coveralls and hoods; wire tie bags for dosimetry;
- “RP” hoods;
- Modesty garments/scrubs;
- Lab coats;
- Mops, decon rags and wipes (folded and rolled);
- Rolled sheeting;
- Waste bags.

A number of these products are patented or have patents pending. Many of our products have been developed from ideas by our users. We continue to develop new products all the time. All OREX products can go into the same waste bag and returned for processing. No waste is returned to the customer from the PVA products.

Question: What field experiences are there with your products?

Answer: OREX products have been used by approximately 45 nuclear plants and two DOE facilities to date. Our OREX PVA protective clothing, modesty garments, and other consumable supplies have been used extensively by these facilities. We have a lot of data to support specific claims relative to OREX. To date, OREX has been the protective clothing of choice for several steam generator replacement outages, reactor head replacement outages, and numerous refueling/maintenance outages. This extensive field experience has allowed us to not only validate the benefits of OREX in particular but also to identify and implement improvements to our products.

Question: What does it matter who I buy PVA products from? Aren't all PVA products the same?

“So far it (OREX) has been excellent. I have gotten several compliments about its ease of use for the workers. Much less work for us too!” - HP Supervisor

“We set new record lows for personnel contaminations. This success is attributable to the use of OREX protective clothing.” - Radiation Protection Supervisor

“I just got out of our spray booth from deconning Nozzle Dams (250k->1e6) and we are using up all the Orex rags and mops and we LOVE them. They are easier to use, absorb more and faster. Then the beauty of all of it is we let them dry and throw them in with the PC's.” - Decon Foreman



Answer: While the PVA polymer used for the products is the same, close examination of products from various suppliers may reveal significant differences in terms of fabrication and quality. We often tell our customers that manufacturing quality fabric from PVA fiber is “more art than science.” We have developed very detailed manufacturing specifications for all of our products as well as “in-process” quality control procedures used during production. Our own staff experts oversee and perform the actual production every step of the way. Our production team has worked with this material for a number of years and we continue to learn. Our nuclear utility backgrounds foster a philosophy among our team of “continuous improvement.” We have learned several lessons over the last two years that have resulted in significant improvement to our products. Although differences may be subtle, close examination may reveal differences in fabric strength and quality. We have examined other available products and believe that our product quality is superior.

Question: *Let’s say I have decided to use PVA products and I need 30,000 dress outs for my upcoming outage or special project. What is the lead-time to supply this kind of quantity of clothing?*

Answer: ETI maintains significant on-hand inventories of OREX products to meet any customer demand with a goal of zero back orders. Once a PO is received, your order can be delivered to your site within 2 to 4 days. We have supported several forced outages with no advance notice. Our minimum on hand inventory is approximately 300,000 dressouts and we enter a typical outage season with an inventory of 600,000 to 800,000 dressouts. We maintain huge quantities of all other OREX products as well. We have a 45,000 sq. ft. warehouse that we own which means we can respond to your needs 24/7. And as our business grows, we manage our inventory to ensure that we can meet the demand. It is also important to understand a little about your vendor of choice’s supply chain. Our commitment to OREX and PVA products goes beyond the normal supplier situation. Most single-use products must be manufactured overseas. This is necessary to provide products economically to the end user. We are in constant contact with our manufacturing facilities overseas and we control production priorities at those facilities. We develop the specifications and in-process controls and procedures used at our manufacturing facilities. We understand the need to provide not only product value, but also confidence and commitment to our customers. And we have a huge investment in this regard.

Question: *Can you currently process the used PVA products?*

Answer: Yes. The back-end processing properties specific to OREX PVA products make the whole concept of “single-use” programs technically and economically viable for the nuclear industry. Single-use programs that don’t mitigate waste generation are short-sighted and ill-conceived in our view. We have been successfully processing used OREX products for well over two years. We designed and patented the OREX dissolution processor and spent many years perfecting it. It is the result of an effort dating back to the mid-1990’s. We figured out how to effectively process PVA products when others had tried and failed. Additionally, we have obtained regulatory approval for its application. PVA processing technology is proven and it is our intellectual property. It is important for user plants to understand what “processing” means. We own the license and patents associated with PVA technologies which allow us to truly and effectively minimize waste burdens on the back end. OREX and PVA product processing methods we employ are unique and cannot be replicated by anyone.

Question: *What is your current capacity for processing used PVA products?*

Answer: A second large processing unit became operational in 2003 and ETI is currently capable of processing in excess of 120,000 pounds of OREX material per month at our Alabama processing center. This month we are starting up a second fully licensed OREX processor for DOE in Oak Ridge, Tennessee. It will have a throughput of about 30,000 pounds per month. This overall capacity equates to more than 300,000 PVA coveralls per month.

Question: Since PVA products are used one time and disposed of, are you licensed as a waste processor?

Answer: No. OREX processing is very similar to the laundry decontamination process and is viewed as such by the regulators. We believe it is our responsibility to ensure that the processing be accomplished without increasing waste volumes generated by the industry at large. So OREX processing is licensed as a decontamination and release process and any residual waste from the process is considered “secondary waste” and is dispositioned by us. The amount of secondary waste is actually significantly less than the secondary waste associated with laundering a similar amount of cloth products. This is important because OREX and launderable products, such as gloves, shoe covers and FR coveralls, may be shipped to us at ETI in the same container as radioactive material and do not have to be tracked or manifested as waste.

Question: Is it possible to visit your facility and witness the processing first hand?

Answer: Absolutely. We believe it is important that our customers truly understand our services and processes. In fact several customers and industry oversight groups, i.e., EPRI, have been to the ETI facility to observe the OREX processing firsthand and validate it, as well as other aspects of our operation. You may call us to arrange for such a tour at a mutually convenient time.

Question: What kind of customer service and support do you provide?

Answer: All of us at ETI will work together as one team to support your needs. It is our priority to ensure we can provide you, the customer, with results you need and depend on. Our primary objective is to ensure that you are successful and help you improve your performance. We are unique in that several of our team members possess significant experience in power plant health physics, radwaste and plant operations. We have walked in your shoes, we understand your challenges and pressures, and we understand what it takes to be successful in today’s nuclear power plant environment. Three of our team members are ex-Radiation Protection managers. They maintain current unescorted plant access training. Thus, we have the flexibility to be where you want us to be. Our commitment is to your performance. To this end, we have offered and continue to offer the following support:

- A comprehensive “change management” plan to help our customers transition to full PVA usage.
- Onsite training or orientations for workers, RP technicians and staff, outage management, etc.
- Assistance with self-assessments of personnel contamination events and contamination controls.
- Evaluation of in-plant logistics associated with laundry handling.

We will come to your site, at our expense, to assist you with any or all of these aspects. The most important aspect of our service is our relationships with the user plants. We focus on creating strong, long-term relationships built on professionalism and trust.

Question: What about other protective clothing needs, such as gloves, shoe covers, Fire Retardant (FR) apparel, etc.?

Answer: We offer comprehensive lines of products to meet your entire protective clothing needs. The entire ETI team will work together to supply your needs and provide logistics for delivery to simplify receipt, stocking and inventory control of all necessary products, as well as provide for the return of used products for processing. Our goal is to simplify your life and allow you to focus on other important aspects of your daily radiation protection programs.

Question: What options are available with regards to packaging of the clean OREX being shipped to our site?

Answer: ETI has a large and growing inventory of dry van type trailers, flat bed trailers, as well as 20' and 40" sealand type containers complete with chassis. OREX can always be shipped in the manufacturer's carton if this meets your needs. We are at your service and will work to accommodate whatever will work best for you.

Question: Even if I convert to disposable coveralls, won't I still need to do laundry shipments for gloves, shoe covers, and Fire Retardant (FR) apparel?

Answer: Many facilities are using one-time use disposable gloves and shoe covers. The OREX Team offers these types of disposable products as well. Use of disposable products completely eliminates the need for laundry services, with the possible exception of FR apparel. Normal use of FR apparel is sufficiently low which allows most plants to maintain an inventory to preclude frequent shipments for the purpose of laundering FR coveralls. ETI maintains a large inventory of FR coveralls that are available for lease to supplement plants' existing inventory of FR coveralls.

For those facilities that choose to continue using launderable gloves and shoes covers, ETI has a large quantity of these products available for lease or purchase as well. Most plants using this option are able to maintain a sufficient inventory so that frequent laundry shipments are not required. Several power plants have used this approach and completed outages with **no shipments** during the outage.

Utilization of approaches that eliminate or minimize the need for laundry services makes it possible and practical for any plant to use our current ETI facility in Alabama, Oak Ridge facility or future facilities planned, regardless of distance from the facility. In fact, facilities as far away as California are currently using the ETI facility in Alabama.

Question: Should my site require laundry services what capabilities will your organization have?

Answer: ETI currently operates the most technologically advanced radiological laundry facility in the country. This facility is located in Ashford, Alabama and can provide 48 hour, turn around laundry service to sites within approximately a 600 to 700 mile radius from Ashford. For sites farther away this turn around time from our Alabama facility increases to 72 and 96 hours depending on the plant location. ETI has the capability to launder all varieties of protective clothing as well as processing of used OREX products. Our facility possesses the latest radiological monitoring technology for protective clothing, including capability to monitor not only beta contamination activity, but also check for discrete radiological particles using gamma sensitive, plastic scintillation detectors. ETI is currently the only laundry vendor that employs this technology. A large inventory of OREX products are maintained at this location.

“dissOLVING your problems through advanced technology”

The OREX™ Advantage

*Contact Us...***Eastern Technologies Inc.**

Melissa Wright
 Tina Granger
 Office: 334.899.4351
 E-mail:
 MWright@easterntechnologies.com
 TGranger@easterntechnologies.com

Doug Kay
 Mobile: 817.559.0506
 E-mail: dkay@orex.com

Benji McWaters
 Office: 334.899.4351
 Email:
 bmcwaters@easterntechnologies.com

Ray McCullers
 Mobile: 334-796-2013
 RMccullers@easterntechnologies.com

John Steward
 Mobile: 972.523.9988
 E-mail: jsteward@orex.com



In summary, we are very proud of the way OREX is helping our customers and the industry as a whole. We believe there is a lot of value in OREX. And the ETI team goes further to build additional value beyond just the sticker price.

- Several Key Members of our Team are from the Nuclear Industry.
- Broad Array of PVA Products.
- OREX Has Been Proven Many Times Over in the Field at More Than 30 Nuclear Power Plants.
- Many Years Experience with PVA Disposable Clothing and Product Technology.
- Ownership and Complete Control of PVA Product Manufacturing Facilities.
- Huge, On-Hand Product Inventories.
- Numerous U.S. and Foreign Patents on PVA Technology.
- Licensed, Proprietary, PVA Processing Capacity To Meet Industry Demands.
- Most Technologically Advanced Laundry/PVA Processing Facility in the U.S.

This technology has come a long way in the past few years. The industry has embraced it now and it appears that many or most U.S. facilities will eventually transition to it. DOE is beginning a transition at some sites now. The success of this technology is a product of two fundamental things that we never lose sight of. First is our commitment to the technology. We are truly and totally committed to this technology. We are the PVA technology experts and our experience with it speaks for itself. Second, our customers have been willing to trust us and explore the benefits of OREX. We have provided our perspectives here but we fully expect and encourage you to contact your peers to get theirs. We will gladly provide you with numerous contacts at other power plants to talk with and provide you completely unbiased views and insights into OREX PVA technology, as well as our commitment to it.

"OREX was the best thing RP has done for this site." -
 RP Supervisor

Website:
www.orex.com