

# EPA SBIR 2013 PHASE I AWARDS

**HOMELAND SECURITY**

**SUSTAINABLE UTILIZATION OF BIOMASS**

**GREEN BUILDING**

**AIR QUALITY**

**INNOVATION OF MANUFACTURING**

**WASTE MONITORING & MANAGEMENT**

**WATER**



**Provident Photonics:** Real-time flare combustion efficiency device to monitor an estimated 7,000 flares in the United States to help reduce VOC and air toxics emissions by tens of thousands of tons annually.

**Electro-Mechanical Association:** Piston temperature control technology for emissions reduction and improved fuel efficiency in diesel engines.

**Solidia Technologies:** Supplementary cementitious materials in high performance, CO<sub>2</sub> sequestering construction material that could reduce CO<sub>2</sub> emissions associated with cement up to 95%.

**KWJ Engineering:** Ultra-low power CO<sub>2</sub> sensor for intelligent building control. Accelerates energy conservation, improves productivity and human comfort while using 100 times less power than current CO<sub>2</sub> sensors.



**NexTech Materials:** Novel method for removing waste materials from biomass gasification—a potentially efficient, less expensive, renewable route to produce electricity, liquid fuels and value-added chemicals.

**Precision Combustion:** Catalytic burner technology that improves biomass-to-energy process economics by improving plant efficiency, reducing greenhouse gases and providing process heat or power.



**TDA:** Encapsulation technology that seals in chemical and biological agent contamination from solid wastes at remediation sites, providing protection to workers from hazardous materials and lowering transportation and disposal costs of the waste materials.

**ACEA Bioscience:** Development of pathway selective cells and assays for sensitive detection of environmental toxicants via high throughput label-free cell-based screening.

**Arna Biomedical:** A quicker and less expensive neurotoxicity testing system via a cell-based co-culture assay system that closely mimics the developing human nervous system.

**Instrumental Polymer Technologies:** Low-cost and sustainable, oil-based polymer system that replaces environmentally toxic polyurethane for wood coatings.

**Ecovative Design:** A "bio-plastic" replacement for unsustainable, fossil-fuel-based plastics that uses mycelium (mushrooms) as the polymer and grows into the desired shape.

**Liquid Lignin Company:** Environmentally friendly wood preservative that utilizes waste lignin and would replace existing copper systems for exterior applications.

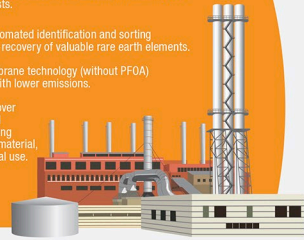
**RegeneMed:** 3-D breast tissue co-cultures for improved screening and prevention of mammary carcinomas.

**Faraday Technology:** Environmentally benign manufacturing method for recovery and recycling of metal removed during electrochemical machining, allowing zero discharge and lower manufacturing costs.

**National Recovery Technologies:** Automated identification and sorting of e-waste to enhance the recycling and recovery of valuable rare earth elements.

**Compact Membrane:** Innovative membrane technology (without PFOA) to enhance the use of green solvents with lower emissions.

**Physical Sciences:** Technology to recover valuable rare earth elements from used machinery and equipment while removing hazardous contaminants from the raw material, thus increasing the value for commercial use.



**VERRIX:** A fully automated, inline germinable endospore biosimetry (GEB) instrument for near real-time monitoring of wastewater treatment efficiencies.



**HJ Science & Technology:** Handheld microfluidic "Lab-on-a-Chip" device for rapid detection and monitoring of multiple toxins, particularly those produced by cyanobacteria.

**Advanced Diamonds:** Remediation of oil-contaminated water using nanofiltration combined with a powerful oxidant to dramatically lower the cost of unconventional fossil fuel wastewater remediation and/or reuse.

**Applied Enviro Tech:** Innovative system for onsite wastewater treatment and nutrient recovery, which has the potential to reduce N and P by 95% with no operational energy required.

**Eden Park Purification:** Low-cost, efficient microchannel plasma ozone generator using fully recyclable modules for improved drinking water treatment.

**Radiation Monitoring Devices:** Solid-state sensor for inspection of pre-stressed concrete pressure pipe to enhance the safety and reliability of water systems, and reduce lost water and downtime for utilities.

**Imaging Systems Technology:** Low-cost rugged, lightweight and highly efficient titanium dioxide-plasma-shell technology to be used with water purification systems for municipal, humanitarian or oil and gas applications.

**Enviro Utilities:** Onsite, affordable wastewater retrofit pretreatment device that is capable of removing more than 70–80% of nitrogen in conventional septic systems.

**NEI Corp:** Technology that saves fresh water sources by allowing use of alternate, non-potable water for industrial cooling by coating pipes internally to prevent corrosion.

